

CIO

JANUARY 1993
VOLUME SIX NUMBER SIX
SEVEN DOLLARS

THE MAGAZINE FOR INFORMATION EXECUTIVES

SPECIAL ISSUE

The Big-Bang Theory

*How Technology
Can Create
A World of Value*

RETURN ON INVESTMENT

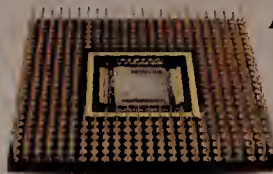


EVERY ONCE IN A WHILE THE BOUNDARIES GET REDEFINED.

Alpha AXP™ Systems.

Now there is no telling how far you can go.

Every once in a while, something comes along that lets you do what you used to only dream about. Digital's new Alpha AXP 64-bit technology is all that and more. Its performance is amazing, especially compared to systems stretched to their 32-bit limits. But for



The 64-bit Alpha Chip

Alpha AXP technology, that's just the starting point.

It has the built-in capacity to grow a thousand times more powerful, expanding the boundaries of computing far into the future. Plus, it's unmatched for openness. You choose operating systems—UNIX®, OpenVMS™, and even Windows NT™ when available.

Choose from over 15,000 applications already written, move



your applications to Alpha AXP, or start creating your own 64-bit applications right now. You can even choose who you buy it from. The technology is that open.



For gaining a competitive edge, Alpha AXP technology is clearly where computing is going. But that doesn't mean AXP you have to wait. Alpha AXP



Alpha AXP systems range from the world's fastest desktop workstation, under \$15,000, to mainframe-class systems.

systems are ready for immediate delivery. To learn more, call 1-800-DECINFO ext. 762. In Canada, call 1-800-268-1121.

Or, to get information by FAX, call 1-800-842-7027 in the U.S. and Canada. Or call your local Digital Representative.

digital[™]

Other downsizing solutions have very definite plans in mind for your programmers.

*SmartSize with UniKix software,
on the other hand, and you can leverage their skills.*

Most downsizers are intoxicated by new technologies. So it's no surprise that they view as expendable those experienced professionals whom they associate with the existing order of computing. But just as your programmers aren't going to appreciate what these zealots have in mind for them, neither should you.



We're Integris, and we're advocates of an approach that goes beyond downsizing. It's called SmartSizing.

SmartSizing recognizes that you have a substantial investment in people skills, mainframe applications, networks and so on. Rather than abandoning them, we seek to leverage them through a modernization process that moves them intact to relational or distributed processing environments at precisely the pace your business requires.

With our UniKix software, for example, we can move existing CICS applications off the mainframe and onto less expensive

UNIX platforms, where the savings can run as high as 600%.*

To find out how organizations such as yours are benefiting from SmartSizing, phone our toll-free number. And if a downsizing vendor tells you your programmers have seen better days, see him to the door.

INTEGRIS
INTEGRATED INFORMATION SOLUTIONS
1-800-765-2826

CIO

VOLUME 6, NUMBER 6



The burden of proof 35
Cover photo by Ralph Mercer

SPECIAL SECTION: THE ROIT STUFF

The REAL Language of Business

35

Compared to the heavy accent now placed upon ROI, competitive advantage was just small talk.

By Allan E. Alter

A Watertight Case

40

Perrier's regionalization is supported by a comprehensive IT plan.

By Megan Santosus

The Engine of Change

62

The NYC Transit Authority's new materials-management system put it back on track.

By Megan Santosus

The Road to Recovery

68

Materials management was a problem at the Medical Center of Delaware, too. A new system provided a much-needed shot in the bottom line.

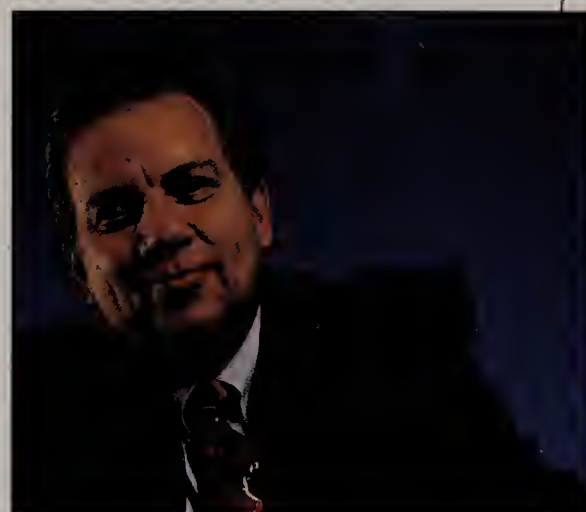
By Richard Pastore

An IS Energy Audit

72

Lone Star Gas improved service to customers, streamlined its operations and saved a bundle.

By Meghan O'Leary



*Warming up
to customers 72*

Bargaining Power

76

Texas Instruments consolidated its purchasing activities and got even more than it bargained for.

By Meghan O'Leary

Swimming in Black Ink

82

A reengineering project at this Travelers division shaved months off the publishing cycle and more than 40 percent off the cost per page.

By Richard Pastore

M O R E ► ► ►

Operating Expense

Operating Income

Operating Assets

Cash

Inventories

Receivables

**Return on
Investment**

Here's the bottom line on Unisys services. Your bottom line.

The bottom line for any customer is—the bottom line. So it shouldn't be surprising that Unisys Services focus on exactly that.

What's surprising is how few other services providers do the same. After all, there's only one reason a customer invests in technology. Only one reason to call on a services provider. Real-world results.

To achieve these results, you need a partner who not only understands technology, but who also understands your business. Building on decades of experience serving the banking, airline, telecommunications and public sectors, Unisys is committed to a bottom-line test, a test that separates the services providers

of the '90s from the services pretenders of the '90s: *unless an information systems plan is designed to serve the customer's business plan, it amounts to little more than technology for its own sake.* Supplying technology is not the object. Applying technology is.

And in applying technology, it's essential to help you wring full value from your investment. That's why, in today's multi-vendor computing environment, our systems integration services make an organization's many systems work cost-effectively

together. It's why our consulting services harness technology to business goals, and not the other way around. It's why our application development process helps identify the desired cost-saving and revenue-generating results before we design the applications on which those results will depend. It's why our education services teach customers how to optimize the relationship between people and technology. And it's why Unisys outsourcing enables customers to lower costs and sharpen competitiveness.

Call us at 1-800-874-8647, ext. 187. Ask how Unisys Services can help your business. It's our bottom line.

UNISYS
We make it happen.

BUSINESS**INTERNATIONAL
COMPETITION
INTENSIFYING**

One by one, world trade barriers are falling, leading to the rise of a truly global marketplace.

Aided by the substantial breakthroughs in telecommunications and computer technology, many firms are finding it easier than ever to enter markets around the world that were previously unreachable.

Even the smallest firms are now able to compete on a global basis, and are finding that overseas markets offer greater growth potential than domestic markets, which may be flat or saturated.

However, this advent of increased global competition has had a brutal impact on price margins.

Local firms which had previously been protected by tariffs or government subsidies are now finding themselves pressed to compete with the new breed of global competitors, whose economies of scale are offering products at lower prices.

This new global marketplace has created the demand for multi-currency financial software that can consolidate a firm's global financial picture into one integrated balance sheet or P&L in seconds.

Due to very confusing, complex and ever-changing tax structures and foreign currency exchange rates that vary country-by-country—this is a new challenge to the new breed of CFOs. ■

**PRESSURE
HEATS UP ON
FINANCIAL
FORECASTING**

The ability to accurately forecast both financial trends in the marketplace as well as the financial performance of the firm is becoming critically important in today's fast-moving, highly competitive marketplace.

With the introduction of new multi-dimensional modeling and financial analysis software, the quality of financial forecasting has risen substantially over the past few years.

New spreadsheet technology such as CA-Compete!, which allows the creation of a multi-dimensional cube of data as

to
a
ha
dec
fram
to ju.

TIMES LIKE THESE CALL FOR THE FINANCIAL SOFTWARE OF THE FUTURE.

How else will you compete in a world that gets more competitive, more complicated and more technology-driven every day?

New CA-Masterpiece® 3.0 is designed for such a world. It's got EDI. GUI. Client-server. Multi-dimensional modeling. Multinational and multi-currency support. And the industry's broadest selection of high-performance modules and add-ons.

CA-Masterpiece 3.0 is a generation ahead of the financial software you're probably using today, and it covers all the hardware platforms you'll ever need: MVS, VSE, UNIX, VAX and AS/400. From mainframes to workstations to PCs.

Best of all, it's backed by CA, the world's leading software company, and software partner to 95% of the Fortune 500.

So dial 1-800 CALL CAI for a free Demo Disk of the financial software of the future.

There's never been a better time.

NEW CA-MASTERPIECE 3.0.

**COMPUTER
ASSOCIATES**
Software superior by design.

© Computer Associates International, Inc.,
One Computer Associates Plaza, Islandia, NY 11788-7000.
All product names referenced herein are trademarks
of their respective companies.

CA90s**Free
Demo Disk**

powerful and are wooing users from traditional environments.

UNIX, AS/400, and others offer incredible breakthroughs and (graphical user interfaces).

These hardware platforms are waiting for users to run on these exciting systems.

DOWN-SIZING TREND ACCELERATES

What will be needed is a way to integrate innovative, new, cost-effective platforms and technology with clients' existing systems and investments.

One can afford to walk away from past investment and start over, throwing hundreds of millions of dollars into IS systems for several decades.

America is starting to demand a return on investment from its MIS departments.

(Return On Investment) of IS is difficult to measure and impossible to project. But still, a meaningful way to assess it must be found.

One aspect of it that is easy to understand is the amount of money in existing IS systems.

Adding back and adding up the investment in systems, training, development, etc., it's easy to see how much a corporation will be abandoning its current systems.

Corporations who have underestimates exercise, it can be quite a experience. It also puts in a new light proposals to scrap existing systems. ■

INVESTMENT PROTECTION #1 PRIORITY

Many hardware and software vendors are proponents of "starting over" for various self-serving reasons, it is rarely a cost-efficient or rational move for clients. Instead, prudent clients focus on evolutionary technological advances, as opposed to revolutionary ones. There's no reason to throw away existing systems when there's always technology that integrate the old with the new.

Annual
performance
review 28



FEATURE

Where Are We Now?

IS executives are still making inroads into top decision-making circles. But that doesn't mean executive concerns about their management skills have been put to rest.

By David Freedman

28

COLUMNS

OUTLOOK: GRAND DESIGNS

Reengineering will be more important than ever next year—and harder to do.

By James A. Champy

26

INSIGHTS: LABORED RELATIONS

For distributed efforts to succeed, IS professionals must overcome their historic disdain for users and learn to enlist their support.

By Lisa M. Moose

86

STATE OF THE ART: GROUP DYNAMICS

CIO affinity groups provide social, educational and cost-saving opportunities.

By Megan Santosus

90

WORKING SMART: MERCED COUNTY'S MAGIC ACT

A distributed environment and an expert system have helped one human-services agency create some very special effects.

By Megan Santosus

104



Strength in
numbers 90



Hands-on
security 16

DEPARTMENTS

Editor's Letter 8

Publisher's Letter 12

Trendlines 16

- ▶ Software survey
- ▶ TQM outplacement
- ▶ IT and county governments
- ▶ Sleeping machines
- ▶ Telephone classifieds
- ▶ Quality tools

- ▶ VR on Wall Street
- ▶ CEO fond farewells
- ▶ Computer bashing
- ▶ Custom conferences
- ▶ Imaging research
- ▶ Hand ID
- ▶ Career moves

Index 101



Over the past year, our readers have told us that one of their priorities is translating the investment in information technology into business value. The ability to express the return on investment from technology in hard dollars is of particular concern. Accordingly, last July and August we invited our readers to submit case studies on the techniques they were using to measure the financial returns for specific IT applications.

The purpose of this invitation was to gather several case studies to profile in our January issue. Our readers submitted 57 case studies, which we winnowed down to 18. Our editorial team then thoroughly evaluated these submissions and selected the six featured in our magazine this month.

Our profiles highlight the accomplishments of both the information executive and the partner for whom the application was developed. They also contain summary boxes of ROI calculations and technical platforms.

The profiles beginning on Page 35 feature The New York City Transit Authority for its materials-management system, the Travelers Companies for its electronic contract-publishing system, the Medical Center of Delaware for its inventory-management system, Perrier Group of America for its route-management system, Lone Star Gas Co. for its customer-information system, and Texas Instruments for its purchasing system.

We appreciate the time our readers took to submit their stories. Special thanks are also due to Ronald T. Brzezinski, a partner in the management consulting services at Coopers & Lybrand, and Richard W. Swanborg, a consultant with Ernst & Young's Center for Information Technology and Strategy, who helped design the ROIT submission questionnaire. Special Projects Editor Allan E. Alter managed the project for the magazine.

Brzezinski also offered his insights into the fourth annual *CIO*/Coopers & Lybrand survey reporting on the attitudes of top executives toward CIOs. This year's survey reveals that more IS executives are becoming part of the team that formulates corporate strategies (see "Where Are We Now?" beginning on Page 28). And it appears that executives are less concerned with CIOs' technical acumen than with their business skills. One criticism non-IT management aimed at their IS executives was that they need to build better relationships with end-user departments.

This month's issue contains a mighty amount of grist for the IT mill—a portent of events to come in this new year.

Marcia Blumenthal

PHOTO BY WEBB CHAPPEL



© By CIO Publishing Inc.

Publisher/Editorial Director JOSEPH L. LEVY

Editor-in-Chief MARCIA BLUMENTHAL

Managing Editor LEW MCCREARY

Art and Design Director MARY LESTER MARSHALL

Special Projects Editor ALLAN E. ALTER

Associate Editor ABBIE LUNDBERG

Associate Editor LEIGH BUCHANAN

Senior Writer THOMAS KIELY

Senior Writer MEGHAN O'LEARY

Senior Writer RICHARD PASTORE

Writer/Researcher MEGAN SANTOSUS

Assistant Art Director MOIRA GILLIS

Design Associate KIM MORNEAU

Editorial Assistant MINA C. AHN

Director of Marketing CATHY O'LEARY HAYES

Production Director LORI BETH SADEWITZ

Director of Finance & Admin. WALTER MANNINEN

Assistant to the Publisher DIANE MARTIN

Circulation Director CAROL A. SPACH

Fulfillment Manager SUSAN WOODWORTH

Senior Promotions Specialist MARCY L. DILL

Production Associate MICHAEL C. PETERSON

Sales & Marketing Specialist BRIDGET CAMMARATA

Sales & Marketing Assistant DOT CASPERSEN

Circulation Assistant BEVERLY BIGHAM

Administrative Assistant LYNN J. PALMQUIST

VP/GM, Executive Programs LYNDA ROSENTHAL

Director, Executive Programs DEBORAH HALON

Registrar ELIZABETH L. LADENDECKER

Contributing Writers

James A. Champy, David Freedman, Lisa M. Moose

Editorial Offices

CIO Publishing Inc., 492 Old Connecticut Path,
P.O. Box 9208, Framingham, Mass. 01701-9208
(508) 872-8200, FAX (508) 879-7784

Subscriber Services

(800) 788-4605



Board Chairman PATRICK J. MCGOVERN

President WALTER BOYD

Executive Vice President WILLIAM P. MURPHY





There's evidence your
broadband needs are becoming much
more than a drop in the bucket.

Are You



Ready?

Your company is facing a flood of data. And your people are demanding bigger, faster and more diverse services. Like E-mail, videoconferencing, LAN interconnection and high-speed data transmission. This means your network is growing in size and complexity. That's why you should call on your local phone company. Your phone company is backed by the products and services of AT&T and AT&T Bell Laboratories. That makes it easier for them to give you the quality and reliability you need. So it'll be easier for you to get your service up. To get all your people hooked up. And to keep your network up. Plus, your phone company can provide all the bandwidth you demand, on demand. So call your local phone company. And see how easy it is to handle your data when you're wired into the right people.

***AT&T And Your Local Phone Company.
Technologies For The Real World.***



AT&T
Network Systems



Happy New Year—and welcome to the January issue of *CIO*. As we look ahead to the challenges facing information executives in the coming year, we at *CIO* recognize that we have an enormous responsibility to deliver actionable information that will help you succeed in 1993.

Based on our ongoing subscriber research, as well as key studies conducted by industry organizations, it appears that business-process reengineering is once again the major challenge with which you'll be deal-

ing. CSC/Index's annual survey of IS executives (see "Grand Designs" on Page 26), rates reengineering as the top-of-mind business issue for 1993, followed by aligning IS and corporate goals, improving systems development, instituting cross-functional systems and utilizing data. These results are consistent with *CIO*'s own research.

Additionally, our readers have indicated that measuring the return on investment from information technology continues to be a critical challenge for 1993 and well into the foreseeable future. This is no surprise since all business executives—including CIOs—are being asked by top management to quantify the bottom-line benefits and return from all corporate investments. Much of our January issue is devoted to that subject.

With these and other issues in mind, *CIO* has developed an outstanding editorial lineup for 1993. And we will continue to address your needs and concerns as we develop agendas for our semianual Perspectives conferences.

It's never easy to stay on top of business and technology change. But *CIO* is in your corner. Please stay in touch with us this year, as you have in the past, and let us know how we can help.

Wayne L. Woz

P.S. Our next CIO Perspectives conference, "IT Assets: Balancing People, Property and Performance," will be held March 7-10 at La Paloma in Tucson, Ariz. Don't be left out! To ensure your participation, call us at 800 366-0246.

Coming In CIO

Do the Right Thing

CIOs who struggle with ethical dilemmas for moral and business reasons are plagued by such gray areas as data usage and integrity, personal privacy and software copyrights, conflicts of interest and improper vendor relationships. "Information is power, and CIOs have an ethical responsibility to ensure that power is not abused," said Gary Edwards, president of the Ethics Resource Center.

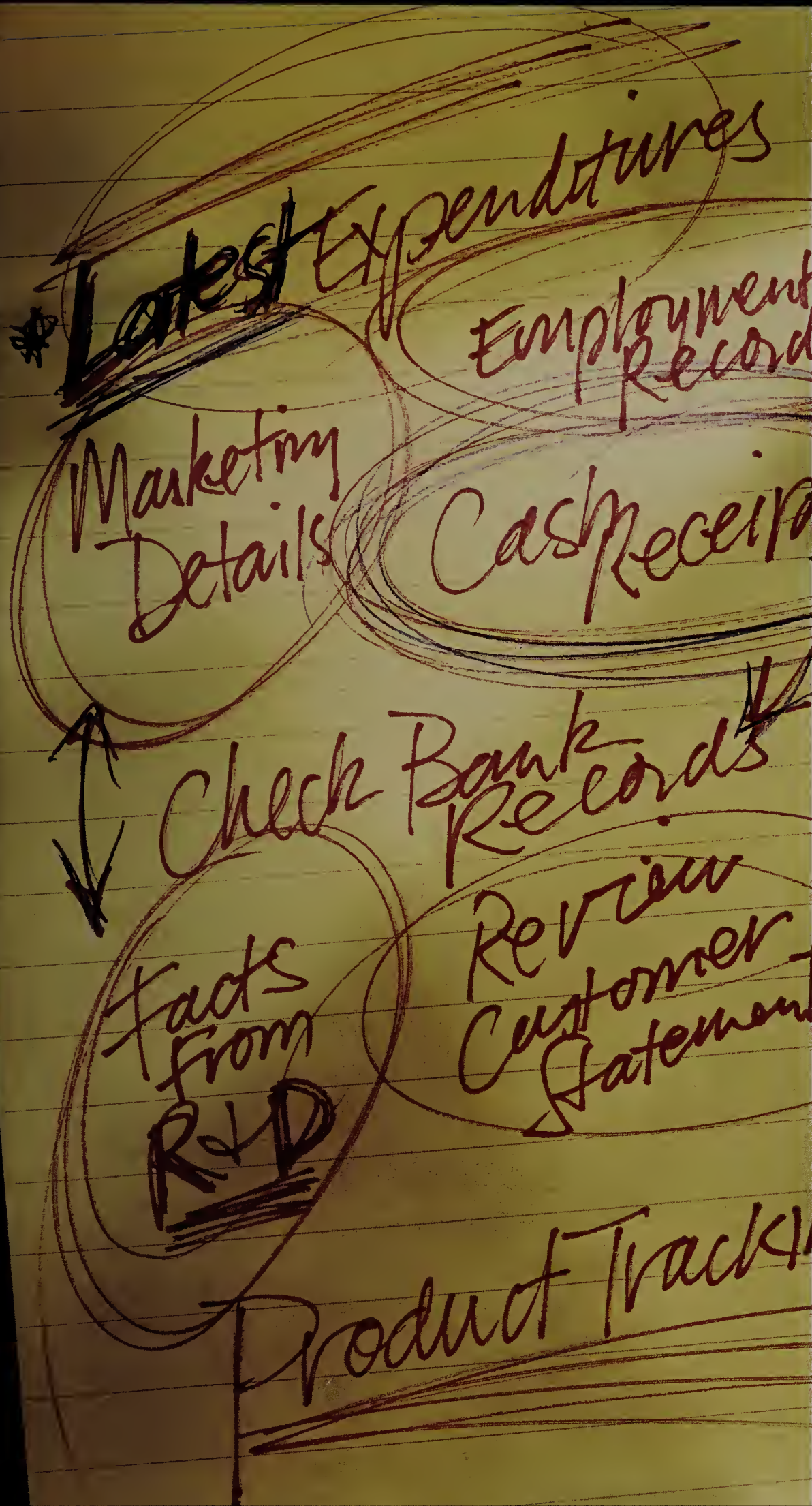
The Best of Both Worlds

Companies that hope to improve their performances by seeking a common ground between centralization and decentralization face a host of new management conundrums. Under these circumstances, IS often plays a critical role in maintaining the balance between chaos and control. To get an idea of how IT fares within a combination company, *CIO* takes a close look at three examples.

I Want My L-A-N

When MTV-parent Viacom International decided that LANs were key to supporting the company's business, it embarked upon a \$40 million overhaul of its IS systems. The plan called for AS/400s in the data center and PCs as the computing point of entry for end users. But corporate LANs are tricky, and throughout the implementation, Viacom's IS staff frequently found themselves dancing in the dark.

PHOTO BY GEORGE SIMIAN



Before their next decision, there's one thing your executives should know.

Everything.

In business, knowledge is power. It's hard for people to make sound decisions when the information they need is locked away in one department's system, or on a different hardware platform.

That's why IBM developed the Information Warehouse™ framework. An array of many products and services that work with your current hardware and software—IBM or not. To give key users complete and timely access to information in the enterprise, no matter where it resides. And to make the most of your company's investment in its data.

Information Warehouse products support common standards that let them work together seamlessly and give users a consistent look and feel. And they include databases and decision support tools to analyze and present data understandably. All of which puts the knowledge and power of your company in the hands of the people who need it.

For free literature, or to have an IBM marketing representative contact you, call 1 800 IBM-6676,* ext. 724. It may be your best decision ever.

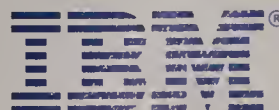
Today's
Information Warehouse.

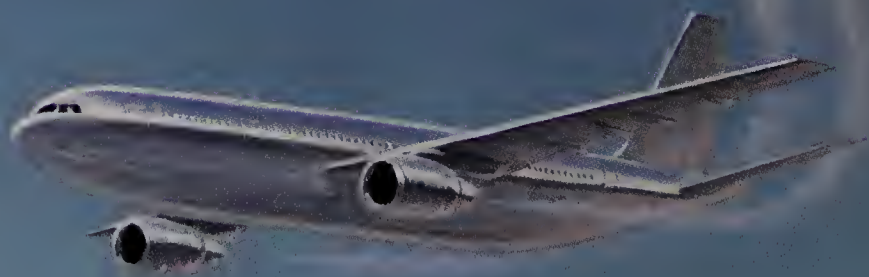
Information
Warehouse

- Works with many of your existing databases.
- Products from IBM and International Alliance Members BACHMAN® and Information Builders.
- Decision support through IBM and Development Partners like Comshare.®

*In Canada call 1 800 465-1234.

IBM is a registered trademark and Information Warehouse is a trademark of International Business Machines Corporation. BACHMAN is a registered trademark of Bachman Information Systems, Inc. Comshare is a registered trademark of Comshare, Inc. © 1992 IBM Corp.





Canadian Airlines International Found A Strong CASE For Managing Change.

In the rapidly changing world of the airline industry, Canadian Airlines International Ltd. understands that keeping seats filled and continually exceeding customer expectations largely depend on how well they manage change. So when they wanted to implement a state-of-the-art frequent flier program in record time, they turned to IEF™ CASE software from Texas Instruments. The Information Engineering Facility (IEF) offers a diverse portfolio of software, which lets you do everything from rebuild high-maintenance-cost legacy systems to develop new strategic systems.

And do it more efficiently with higher quality.

Widely recognized as the leading tool for achieving integrated CASE solutions, the IEF helped Canadian Airlines International create their *Canadian Plus*® frequent flier system in less than half the time it would have normally taken to build it from scratch.

Today, Canadian Airlines International knows the IEF can help them adapt to change in other areas as well. They realize the IEF has many strengths other than just enabling reduced application development times.

Richard Nelson, Director of Operations, Canadian Technology Services, Canadian Airlines International Ltd., said, "It (the IEF) has brought the airline tremendous benefits in staff and operating cost efficiencies."



Richard Nelson
Director of Operations
Canadian Technology Services
Canadian Airlines International Ltd.



In the end, Canadian Airlines International, with the help of the IEF, produced an outstanding frequent flier program. Customers get better service and Canadian Airlines International has increased passenger count.

Canadian Airlines International is just one of many companies in a diverse range of industries that have also found a strong CASE for managing change. We'd like to share a few more CASE histories with you. Call us now for a copy of *The IEF at Work*. Government purchasers please reference GSA#GS00K92AGS5530.

1-800-336-5236.



©1992 TI 76573

IEF is a trademark of Texas Instruments Incorporated. *Canadian Plus* is a registered trademark of Canadian Airlines International Ltd.

TRENDLINES

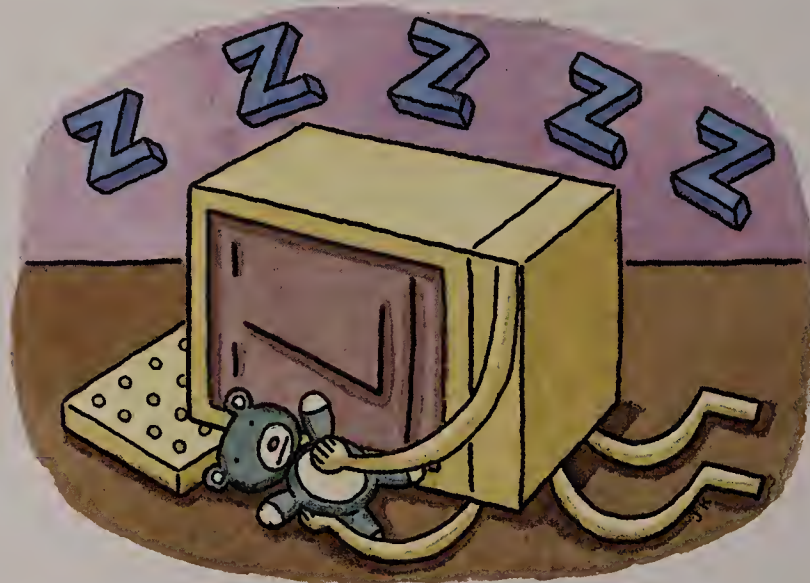
ENERGY CONSERVATION

DOZING ON THE DESKTOP

Energy conservation just got a boost from the office-automation crowd: a next-generation microchip that saves power by switching into a "sleep" mode when the computer is not in use. In a recent announcement with the Environmental Protection Agency, Intel Corp. of Santa Clara, Calif., the country's leading supplier of chips, said it would incorporate energy-saving technology into all of its future microchips, making it easier for PC manufacturers to make products that meet EPA energy-consumption guidelines.

In making this move, Intel joins a dozen other major vendors participating in the EPA's Energy Star Computers Program, which is aimed

at developing personal computers and printers that power down when not in use.



Powering down is estimated to cut by at least half the electricity used by a PC, as well as utility bills and the

air pollution caused by generating electricity.

Computer systems account for five percent of commercial electricity consumption in the United States, according to the EPA. But studies indicate that business computers are not being used most of the time they are on, and as many as 40 per-

cent are left running overnight and on weekends. The computer manufacturers already participating in the Energy Star program together account for 40 percent of all the personal computers sold nationally.

Under the agreement, participating manufacturers will sell computers capable of sleeping in a 30-watt stage, compared to the 150 to 200 watts required when they are in use. A logo signifying EPA approval will begin appearing on products and in advertisements next June.

The EPA estimates that computers developed under the program could save enough electricity to power Vermont and New Hampshire for an entire year and save rate-payers nationally up to \$1 billion in annual electricity bills.

As for the EPA, its own use of Energy Star-compliant computers could save taxpayers up to \$400,000 in electricity costs, making it the most cost-effective environmental initiative in federal government history.

A NEW CLASS OF CLASSIFIEDS

The main problem with classified ads is they're not classified enough; someone looking for a 1987 Volvo or six rooms, river view, may have to wade through pages of newsprint before hitting pay dirt. But a new, interactive classified advertising system, from SureFind Classifieds By Telephone of Seattle, is eliminating such tedious searches by providing customers with only those ads that meet their specifications.

Using the keys of a touch-tone phone, callers specify what they are looking for by answering a series of questions. SureFind searches its inventory for ads that match the specifications, "reads" the ads to the caller over the phone or delivers them to the caller's fax machine, free of charge. Callers who find an ad of particular interest can press a button and be connected with the realtor, property manager or auto dealer who placed it. And if SureFind doesn't currently have a listing that meets a caller's criteria, it will continue to search on the caller's behalf and call back when something appropriate comes in.

SureFind Classifieds says it has the largest daily classified inventory of used cars and properties for sale or rent in the Puget Sound, Wash., area, where the system was rolled out this year. The service currently receives more than 45,000 calls a month, and the company hopes to eventually launch a national classified information network.

IMAGE PROMOTION

Document image processing is still one of the most expensive and sweeping technology initiatives an organization can undertake. Little wonder, then, that only 30 percent of companies considering image are actually going through with it, according to research conducted by Tenex Consulting of Burlington, Mass. The rest have had their image hopes quashed, typically by the chief financial officer. And the CFO is probably doing the right thing, says Thorton May, Tenex's director of research.

The problem is not with penny-pinching CFOs; it's with the image sponsor and the method used to justify the high cost of implementing the technology, the report says. Most sponsors approach image as a streamliner of existing processes, a way to cut waste from the system. The trouble is, this type of benefit alone rarely justifies the price of image hardware, software and the conversion of existing paper-based media archives to electronic images.

Instead, May advises that image champions also present justification based on revenue enhancement from improvements in things like time to market and customer service. Document imaging can deliver full value only when processes are redesigned with revenue enhancement as well as cost savings in mind, May said.

ALL SORTS OF COMPANIES
MAKE PROJECT MANAGEMENT
PROGRAMS FOR WINDOWS.TM
THEN AGAIN, AIRPORT LOUNGES
MAKE NACHOS.

INTRODUCING A NEW GENERATION OF PRODUCTS FROM ABT.

Project Workbench® and the Project Bridge® family of products are now available for the Windows™ operating environment. You get the expertise of project managers in programs that are more powerful, accessible, visual and customizable. So don't go to just anyone who makes a Windows™ product. Call us. 1-800-4PROJEC.



APPLIED BUSINESS TECHNOLOGY

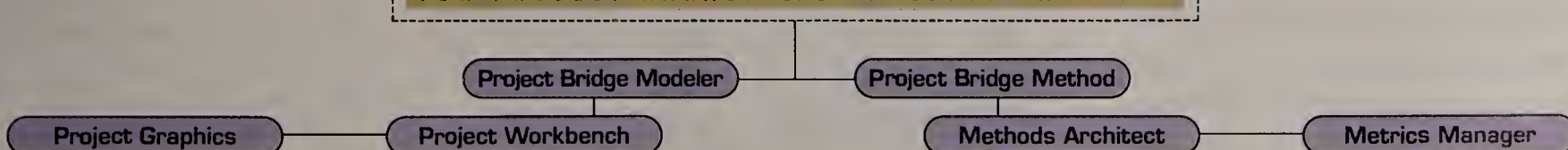
©1992 Applied Business Technology. Project Bridge and Project Workbench are registered trademarks of Applied Business Technology Corporation. Windows is a trademark of Microsoft Corporation.

**YOU DON'T HAVE
TO BE A BRAIN SURGEON
TO DESIGN PROJECT
MANAGEMENT SOFTWARE.
BUT BEING A
PROJECT MANAGER MIGHT
COME IN HANDY.**

At ABT, our software is designed from the unique perspective of a person who's been a project manager. So naturally it's easy to learn, yet it handles the most complex and detailed projects comfortably, since we know from experience exactly what the job involves.

True, designing project management software isn't brain surgery. But it helps when you've been inside a project manager's head. Call 1-800-4-PROJEC.

FOR PROJECT MANAGERS. BY PROJECT MANAGERS.



APPLIED BUSINESS TECHNOLOGY

TRENDLINES

BUT DOES IT LIST GREENS FEES?

McGraw-Hill Inc. can't leave a good thing well enough alone. At the EDUCOM '92 conference last October, the New York-based company demonstrated a new application for its award-winning Primis electronic custom-publishing system. In addition to college textbooks, Primis is now in the business of producing customized conference proceedings up to 900 pages in length.

The 2,700 EDUCOM attendees used 24 online Apple Macintoshes to access a database containing a variety of information sources, including the 28 conference speeches and selections from McGraw-Hill's *Business Week* and custom-published textbooks. Information about new products offered by EDUCOM corporate associates was also available. Attendees selected the entries that interested them, and a personalized conference book was created with the help of a Kodak printer.

"We see strong potential for Primis in on-demand conference-services publishing as well as in the custom college-textbook market," said Robert D. Lynch, vice president and director of the company. If the response at EDUCOM '92 is any indication, Primis will indeed be a hit among the conference crowd. In just four days, more than 800 orders for customized proceedings were placed. ■

WALL STREET: THE NEXT GENERATION

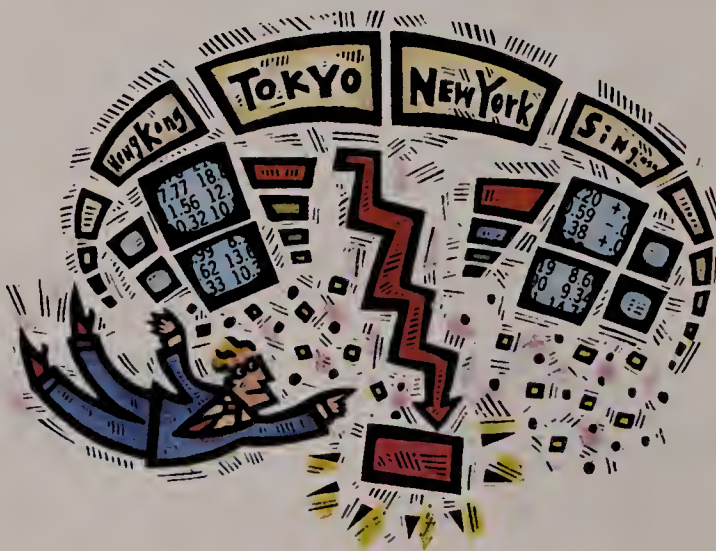
Enterprise has always been welcome on Wall Street. Now a favorite tool of the Starship Enterprise may become popular as well.

On the assumption that no one can read a matrix or a grid of numbers as quickly as they can look at a picture, Maxus Systems International of New York has developed a data-distribution and -display system that uses virtual reality to help traders grasp otherwise unmanageable amounts of complex information. A VR engine from Sense8 Corp. generates simulations of market conditions as three-dimensional objects or "metaphors." Color and shape reflect user-defined attributes, such as fundamental or technical indicators.

Visual images appear on a monitor, so there are none of the headsets, visors or helmets usually associated with VR. Navigating with a mouse or space ball, users can "fly" down to a grid representing the market to see whether a certain chip is floating above or below ground zero—in other words, whether it is trading up

or down. When unusual circumstances are spotted, users can zoom in on the metaphors to view all the information available.

For example, when the Japanese stock market collapsed last March, a trader tracking Pacific Rim stocks and markets could have swooped down onto a glowing red rectangle representing that country's financial sector for a birds-eye view. "The Japanese sector was glowing red," said Paul Marshall, executive director of Maxus. "Tokyo looked like a bomb had hit it." ■



VENDOR SURVEY

A HARD LOOK AT SOFTWARE

According to the 1992 Software Industry Business Practices Survey, vendors are committed to offering "multiple everything" when it comes to supporting a variety of operating systems, hardware platforms, network versions and databases.

The national survey of 796 software-company CEOs was conducted by Price Waterhouse and sponsored by the Massachusetts Computer Software Council, the Information Technology Association of America and the Soft-

ware Publishers Association. Survey respondents said they had added or planned to add one or two new products during 1992. More than 80 percent of respondents currently support at least two hardware platforms, and 26 percent offer network versions of their products. In addition, all of the vendors offering operating systems projected that more products would be running on them by year end.

Despite the proliferation of new products, software companies reported that 66 percent of their revenues were derived from a single product. Even companies with more than 100 employees reported getting nearly half their revenues from one product. "One of the most fundamental issues facing the software industry today is whether growing companies can generate successful follow-on products internally," said survey director Joe Tibbetts. How companies resolve this issue will determine the shape and character of the industry at the end of the decade, he said.

The emphasis on compatibility was found to have significant cost implications and may be contributing to the continued focus on software quality and on new development tools, techniques and methodologies. The growth in object-oriented technology may be one result of the need to support more platforms, according to survey chairman Frank Ingari, vice president of Lotus Development Corp.

Other trends revealed by the survey include the increasing importance of marketing techniques such as direct mail, a strong shift to the use of C++ as a development language, the accelerating use of software-development tools, a projected explosive growth in the use of graphical user interfaces and increasing availability of client/server products. ■

These Routers Won't Let Your Network Down

No Single Point of Failure. Ensure that your network stays up, even if a single component fails, with extensive hardware and software redundancy, as well as fault isolation and recovery capabilities.

Unsurpassed Connectivity and Interoperability.

Create one seamless internetwork with support for every major LAN and WAN medium and protocol, including SNA.

On-line Operational Servicing (Hot Swap).

Easily replace any hardware module without taking the router out of service.

SNMP Node Management.

Configure, monitor and control the router from a remote PC or workstation with our windows-based Site Manager. It's as easy as "point and click."



Industry-Leading Performance.

Minimize application response times with forwarding performance that scales to 480,000 pps. Our unique symmetric multi-processor architecture utilizes MC68040-based Fast Routing Engines and our 1 Gbps Parallel Packet Express.

On-line Dynamic Reconfiguration.

Quickly change any configuration parameter without taking the router off-line or rebooting.

Network Security.

Control access to networks, applications, servers and individual users easily and effectively using our Uniform Traffic Filters.

Investment Protection. Satisfy your growing network needs by adding software and hardware modules to our scalable systems, rather than buying new routers. Our commitment to standards ensures interoperability with other products, now and in the future.

Your company's success depends on how well your enterprise internetwork supports mission-critical applications. You need to keep your internetwork running all day, every day, no matter how much traffic it has to handle. Regardless of the number and type of protocols it has to support.

Regardless of how often you have to make configuration changes. And regardless of

unexpected malfunctions. That's why your internetwork needs the most technologically advanced routers ever developed – Wellfleet's Backbone Link and Concentrator Nodes. For more information and a free copy of Wellfleet's Router Evaluator, phone us today at **1-617-275-2400, Extension 8.**

After all, you can't afford to choose a router that lets your network, or your company, down.



**When Your Networks Are Complex,
Your Choice Is Simple.™**

TRENDLINES

COMPUTER WHACKERS

P-O'd programmers and aggravated analysts practiced primal downsizing on some aging computers at The Boston Computer Society's first annual Demolition Derby, held last October in the courtyard of the organization's Cambridge, Mass., headquarters. Five dollars bought participants five minutes in the ring with a sledgehammer and a half dozen defenseless mainframes and minis, with the proceeds going to the Society's Public Service Committee. Below, CIO Managing Editor Lew McCreary does the Travis Bickle thing. ■



COUNTY GOVERNMENT

BY THE COMPUTER, FOR THE PEOPLE

America's 3,100 county governments—a long-overlooked corner of the IS world—may be ahead of many companies when it comes to aligning technology with business goals, according to a recent report from the School of Information Studies at Syracuse University in New York.

The first-ever national study on information resource management in counties found that many are applying technology to their most critical issues. For example, counties forced to operate with fewer resources have turned to IT to maintain or improve services—using technology to reengineer basic work processes and restructure or downsize local government. Counties are also using IT to offset dwindling revenues—selling county data, more closely tracking taxable properties and more rapidly recording and depositing bank tax receipts. For instance, a geographic information system (GIS) helped the assessor's office in Clark County, Nev., identify \$14

million worth of unassessed property. And Dade County, Fla., saved \$1.6 million by using a GIS to reroute trucks collecting solid waste. "IT is the only way we can make any quantum leaps here," said a Clark County public works administrator.

In addition to GISs, the technologies that interest county officials most include emergency 911 systems and imaging. Criminal-justice and court-management applications were ranked as the top priority for development projects in the immediate future.

Counties are also embracing new IS management and organizational approaches. IS departments in Los Angeles County and Hennepin County, Minn., compete for county business against outside vendors. Wake County, N.C., has committed itself to providing personalized customer service; all IS department employees must keep a roster of customers and maintain direct contact with them.

And the news was favorable from top non-IS county officials, who give IS depart-

ments high marks for being attentive to and cooperating with users. According to the report, "the central [IS] facility is no longer perceived as authoritarian and dictatorial in its orientation to the user departments."

The study said that the median annual operating budgets for central IS departments range from \$175,000 in very small counties to \$4.65 million in very large ones. ■

ON THE RECORD

Last October, when General Motors' stock rose on the news that CEO Robert C. Stempel would resign, *New York Times* writer Susan Antilla asked Wall Street professionals to cite other CEOs who might help their companies' stock by stepping down. Among their picks: Paul Lego, CEO of Westinghouse (the company exhibits a "continual pattern of underestimating difficulties," noted one analyst), and Rand V. Araskog, CEO of ITT Corp. (for his fat salary and the diversity of ITT's businesses). Lego's departure might push Westinghouse's stock up 10 percent, and Araskog's would boost ITT by 20 percent, analysts figure.

Also mentioned: Kay R. Whitmore, CEO of Eastman Kodak; James Robinson, CEO of American Express; and John Akers, CEO of IBM. Whitmore's and Robinson's departures might boost their companies' stocks 5 to 10 percent (blamed are off-the-mark restructurings at Kodak; bad publicity and problems in Travel Related Services at AmEx). And an "adios" from Akers might push IBM stock up 15 to 20 percent, analysts said. ■

CAREER MOVES

Texas Instruments, of Plano, Texas, has named STEVE GROCE manager of operations for the company's Information Systems and Services division. In his new role Groce, who retains his current responsibilities as a division administrator for IS&S, will oversee three main TI data centers. He succeeds JEFF MURRELL, who becomes manager of IS&S for the Asia-Pacific region.

HELLENE S. RUNTAGH, the president of GE Information Services of Rockville, Md., recently took on added

responsibility when she was appointed chief information officer of GE. Her new duties put her at the helm of GE's worldwide corporate IT function. She will continue to manage GE Information Services.

The National Information Technology Center, also of Rockville, a nonprofit research partnership of government, education and industry, has named SAM W. RUSS vice president of technology. Russ will be responsible for the center's overall technology direction and the operation of its technical facilities. NITC promotes the development of usable technologies and business applications. ■



Just don't expect it to roar.

These days, organizations are seeking to become swifter and more ferocious.

But superficial changes are unlikely to produce results. Especially when information technology is part of the plan.

Which is why Andersen Consulting

helps companies link technology to the heart of their business. Their strategies, business processes and human resources.

Because today, winning often means transforming the organization. Not just hopping on a technological bandwagon.

ANDERSEN
CONSULTING

ARTHUR ANDERSEN & CO., S.C.

TRENDLINES

TQM OUTPLACEMENT

Do Not Pass Go, Do Not Collect Unemployment

You're in the thick of an exhilarating effort to apply TQM principles in transforming your manufacturing operations into "world-class" paragons when, suddenly, you're sold by the cash-strapped parent company to a competitor. Surprise! The competitor decides to close your newly world-class manufacturing facility and let everybody go—from the executive suite to the shop floor.

These sound like the sorts of vicissitudes that pop up on the "Chance" cards in a Monopoly game. Which is ironic, since the afflicted company was Salem, Mass.-based Parker Brothers, the originator of Monopoly. But the other pile of cards in that game is called "Opportunity," and that's how certain visionaries at Parker Brothers

came to regard their predicament.

"We knew that the company was for sale," said former CIO Ann Gosse. "The thing we never anticipated was that [the buyer, toy giant Hasbro Industries Inc.] would close the manufacturing facility.

"We were instituting quality initiatives across the company," she said. "We wanted to be one of the best manufacturing organizations in the world. When this happened, a core of [executives] got together and said why couldn't we do the same with outplacement?"

So the soon-to-be-unemployed workforce developed a plan to apply TQM methods to marketing themselves as prospective employees of other companies. Among other things, they held a jobs

fair showcasing Parker Brothers' redesigned manufacturing processes and promoting the "TQM readiness" of the company's manufacturing workforce.

"We stressed that the manufacturing people had training in all the quality disciplines and could really make an impact in any organization that had a TQM program in place" or else help inaugurate one.

Gosse said the overall TQM-outplacement effort "was probably one of the best things the company ever did. It really helped at the end to pull the employees together. We all decided we wanted to go out in style rather than with our heads hanging."

Did it work? According to Gosse, "One hundred percent of top management are employed now"—most in the Boston area, not exactly a garden spot on the economic landscape. For her part, Gosse now manages IS at SAGA International Holidays, a British-owned tour operator with Boston-based U.S. operations. ■

TOOLS OF THE QUALITY TRADE

If quality improvement is on your mind, check out the recent report from the Society for Information Management's working groups on quality. After 18 months spent studying the best quality-management practices in IS organizations, the group has produced a list of assessment and planning tools that anyone can buy.

The first tool—an IS quality matrix—takes 28 Baldrige Award quality categories, translates them into IS terms and describes five levels of achievement in each category, from "beginning" to "world class." For example, the category "strategic quality and company performance" is broken into questions such as "how is the IS strategic quality plan integrated with other corporate requirements?"

The matrix is meant to be used as an assessment tool. "Any CIO can pick up the matrix, ask a question, see what the answers are and shade in where they now stand," said Warren Harkness, director of information services at Bose Corp. in Framingham, Mass., and a leader of the New England working group on quality.

The second tool is a catalog of leading quality practices. It provides real-life examples of quality practices at different levels in the matrix. A third tool offers descriptions of two conceptual frameworks for describing the relationship between IS and the business and for delivering IS services.

The cost is \$75 for SIM members; \$150 for nonmembers. ■

PRACTICAL PALM READER

A new type of identification system may not be able to tell if you're going to meet a tall, dark stranger, but it might be able to tell if you are one.

PIDEAC (for Personnel Identification and Entry Access Control), a company based in Yellow Springs, Ohio, has developed a system that encodes information about the shape of a person's hand and stores it on a plastic card's magnetic strip.

Users wanting to gain access to anything from bank automatic-teller machines to high-security facilities simply place their cards in the machine and their hands on a screen; the system then compares the size and shape of the hand with the data encoded on the card.

The system allows for minor changes due to injury or swelling. The more advanced models take three measurements of each digit and can tell if the hand has a

pulse (the implications of that particular feature are a little disturbing).

While you may not be about to come into a large sum of money, at least now neither is the creep who just lifted your wallet. ■



Enterprise Networking

See the latest in
Enterprise Networking solutions!
COMNET, Booth 1246



Which kind of networking credentials matter the most?

Against a background of lower staffing levels, reduced budgets, and the need to communicate globally, you need a supplier with the right technology.

But technology is only a part of the story.

You need a supplier who can deliver Enterprise Networking solutions tailored to meet your organization's objectives, now and in the future.

And that's why so many of the world's major organizations choose Ascom Timeplex.

We deliver LAN and WAN internetworking systems which optimize networks, protect investments and provide smooth migration toward tomorrow.

We also provide first-class service and support, round the world, round the clock. Including enterprise-wide network management.

Today, the Ascom Timeplex focus on your business needs makes more sense than ever.

And if those are the kind of networking credentials that matter most to you, we should be talking.

Contact us for the full story on the Ascom Timeplex approach to Enterprise Networking, including details of our new branch networking systems.

Ascom Timeplex, 400 Chestnut Ridge Road, Woodcliff Lake, NJ 07675. Tel: 1 800 669-2298.

All trademarks acknowledged.

*Enterprise Networking: **ascom Timeplex** thinks ahead*

USER RATINGS OF MAINFRAMES **DATAPRO SURVEY, MARCH 1992**

	HDS	Competitor A	Competitor B
System Reliability	4.9	4.7	4.6
Responsiveness of Service	4.7	4.6	4.3
Effectiveness of Service	4.7	4.6	4.3
Ease of Operation	4.5	4.4	4.0
Ease of Upgrade	4.6	4.4	4.0
Ease of Programming	4.4	4.3	3.9
Connectability	4.5	4.4	4.0
Training Time	4.4	4.1	3.8
Price Performance	4.5	4.5	3.6
Documentation	4.3	4.2	3.9
Quality Application Packages	4.2	4.0	3.8
Availability of App. Packages	4.4	4.2	4.2
Overall Satisfaction (average 4.0)	4.5	4.4	4.0

With results like this, you don't need a clever headline.

The figures say it all.

There were twelve categories. And HDS topped each and every one of them. Which means, of course, that we scored the highest overall satisfaction.

It's the second year in a row our customers have voted us number one in the prestigious Datapro Survey of Mainframe Users. With results that showed we dominated the competition.

Not bad, considering it's only the second year we've been included in the survey.

To everyone who bought HDS, thanks again for your overwhelming support. It's really you who wrote this ad. And we think these figures are far more persuasive than any clever headline.

Hitachi Data Systems, 750 Central Expressway, Santa Clara, CA 95050,
(408) 970-1000.

HDS — The Growing Advantage



Hitachi Data Systems markets intermediate and large industry-standard mainframe computers, and disk, cartridge tape, and semiconductor storage systems.

Hitachi Data Systems

Grand Designs

Reengineering will be more important than ever next year—and harder to do

BY JAMES A. CHAMPY

For information executives of large North American organizations, 1993 begins where 1992 left off—with heightened demands from business managers to overhaul woefully inefficient business processes using extremely stretched resources.

The sixth annual CSC/Index survey of senior IS executives finds, once more, that reengineering is real. Reengineering was called “most important” more frequently than any other management issue by the 224 U.S. and Canadian respondents polled last fall. This should come as no surprise, given all the media attention to this technology-enabled process-improvement method. Nearly three-quarters of this year’s respondents (72 percent) said they had a major formal process-improvement initiative underway, and another 13 percent were discussing such an effort. Answers to follow-up questions about these initiatives suggest that the majority are reengineering-like in spirit. Most target major rather than small-scale improvements: changing processes across functions; redefining corporate culture; and altering jobs, organizational structure and management systems. These initiatives are also directed by a senior management team and use IT as an enabler of new ways to work.

Lofty as their goals may be, these reengineering initiatives will operate in a harsher environment in 1993. First, IS dollars for the new applications and technologies that reengineering demands are getting harder to come by. The average IS budget will rise only 2.5 percent in '93—even less than the paltry 3.5 percent projected a year ago. Compare this to the 7.5 percent average increase for 1989. Second, companies are hamstrung by their legacies—

aging mainframe systems that must be updated or scrapped in favor of better, cheaper technology.

The ways in which new systems are developed compound reengineering difficulties. The study’s authors believe that “improving systems development” rose to third place because organizations discovered that their rigid, “get-the-specs, write-the-code” development techniques don’t produce reengineered business processes. IS people must help businesspeople rethink their business processes, not simply automate the old familiar ones. New systems must be prototyped at the same time as new business processes. As an issue, systems development has never ranked higher.

Many applications supporting reengineered processes will end up not on the mainframe but on much smaller platforms. A new issue reached the top 10 this year: changing technology platforms, which was defined as “downsizing computer

applications from mainframe to client/server architecture and/or PCs.” Respondents gave further evidence of the push to client/server when listing their top emerging technologies. Client/server was by far the most popular choice—cited by 47 percent. Far behind were imaging (29 percent), CASE (17 percent) and EDI (14 percent).

Two major challenges emerge: building the new technology infrastructure required to do reengineered work, and shifting resources from traditional to accelerated modes of system development. The first requires investing in IT, even in times of diminishing resources. The second calls for more iterative approaches—developers working hand-in-hand with the designers and prototypers of new business processes. 

James Champy is chairman and CEO of CSC/Index Inc., a Cambridge, Mass.-based international management-consulting firm.

Top 10 Issues of IS Executives for 1993*

	1993	1992	1991	1990	1989
Reengineering Business Processes	1	2	1	1	11
Aligning IS and Corporate Goals	2	1	2	4	2
Improving Systems Development	3	9	4	6	13
Instituting Cross-Functional Information Systems	4	6	3	3	7
Organizing/Utilizing Data	5	4	5	7	6
Cutting IS Costs	6	11	11	10	14
Creating an Information Architecture	7	3	8	9	5
Updating Obsolete Systems	8	18	■	13	■
Developing an IS Strategic Plan	9	10	6	5	4
Changing Technology Platforms	10	■	■	■	■

* SURVEY OF 224 U.S. AND CANADIAN I.S. EXECUTIVES

■ = NOT RANKED THAT YEAR

SOURCE: CSC/INDEX, CAMBRIDGE, MASS.

THINK BIG. START SMALL.



EDA/SQL FROM INFORMATION BUILDERS: The Data Access Standard For Client/Server Computing That Grows With You.

MAKING THE MOST OF YOUR ASSETS

Data is one of the most strategic assets any business can have. Because businesses that utilize data well, will succeed. Businesses that don't, won't.

The trick is knowing how to use your data resources in the most cost effective way.

That's where Enterprise Data Access/SQL (EDA/SQL) as a client/server solution can make the difference.

OPENNESS, POWER AND FLEXIBILITY

Implementing client/server applications can be tough, particularly when you need to access remote data on diverse platforms.

With EDA/SQL, you have the freedom to access data in over 50 different databases and files, running

on 35 computing platforms using any major network protocol. And there are dozens of applications and tools available from more than 50 leading software vendor partners that support EDA/SQL.

No other SQL solution on the market gives you this much flexibility.

BIG OR SMALL, IT'S ALL THE SAME

EDA/SQL has the power and the ability to drive the largest enterprise-wide implementation, or to simply connect a single client/server application to a specific data source.

And because there's an EDA/SQL solution for every popular platform, and network protocol, you can use it in the environment of your choice.

Only EDA/SQL has the scalability and configuration

flexibility to meet your client/server requirements both today and tomorrow.

You can start with the EDA/SQL solution you need today. Then, efficiently and economically grow any configuration to meet your changing business requirements. Big or small.

For more information on EDA/SQL, our consulting services and education programs, or to attend a FREE Seminar...

Call 800-969-INFO

In Canada call 416-364-2760

IBI  **EDA/SQL**
Information Builders, Inc.

EDA/SQL is a trademark of Information Builders, Inc., 1250 Broadway, New York, NY 10001.

WHERE ARE

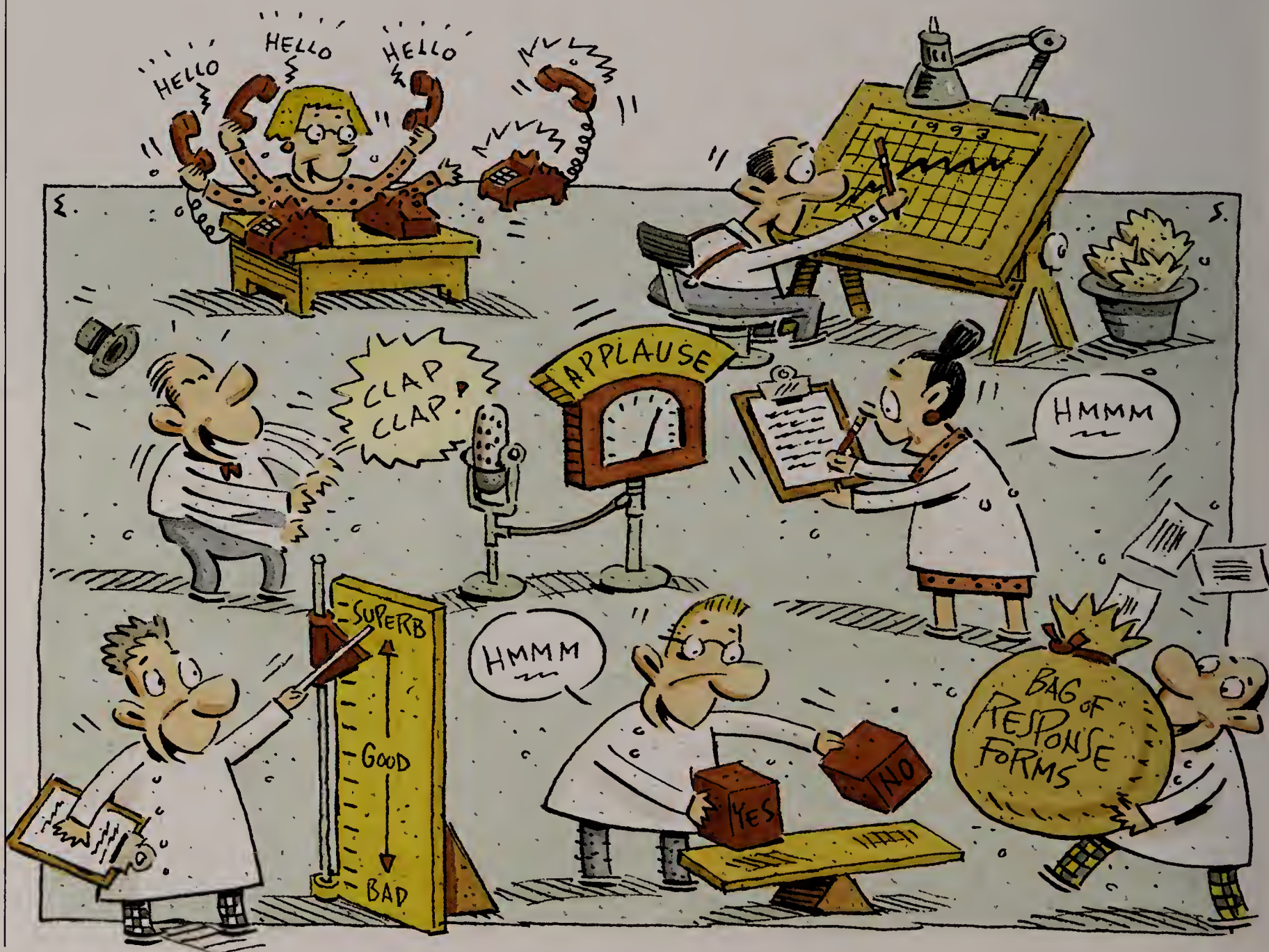
IS executives are still making inroads

into top decision-making circles. But that

doesn't mean executive concerns about their

management skills have been put to rest.

BY DAVID FREEDMAN



THE PAST FIVE YEARS haven't been easy for IS executives. The transition to networked, distributed computing has required new approaches to everything from designing corporate IS architectures to developing applications to training end users. But much of that agony may now be a thing of the past.

According to a survey of non-IS executives sponsored by Coopers & Lybrand and *CIO*, in the next few years the IS executive will be called upon less for bold new solutions and more for ways to smooth out and build on existing ones. However, the act of setting up those IS business processes

needed to capitalize on new architectures could be a challenge in itself. "CIOs have helped their companies find new ways to manage," said Ronald Brzezinski, a partner in Coopers & Lybrand's management consulting services and a

former CIO. "Now they have to find new ways to manage themselves."

The need for new management styles is only one finding of the fourth annual Coopers & Lybrand-*CIO* study. The survey asked 201 CEOs, CFOs, COOs, vice presidents and other senior, non-IS executives at companies of different sizes and from different industries a range of questions about IS management.

Among the trends highlighted by the survey:

- The top IS executive continues to play a stronger and stronger role in top-level corporate decision-making.
- Technological issues are becoming less important, and management issues are becoming increasingly critical.
- Top executives are worrying less about how well IS executives hold the line on costs and prove return on investment, and more about how well they meet the needs of end users.
- The longstanding obsession with providing an IS-based competitive edge seems to have peaked.
- IS executives are finding an important new role in efforts to boost quality throughout the organization.
- A majority of manufacturing companies are finally looking to IS to play a strategic role—while financial companies, having long focused on strategic IS, may be shifting to more tactical concerns (see related story, Page 30).

**The Most Important
Characteristic of a CIO**

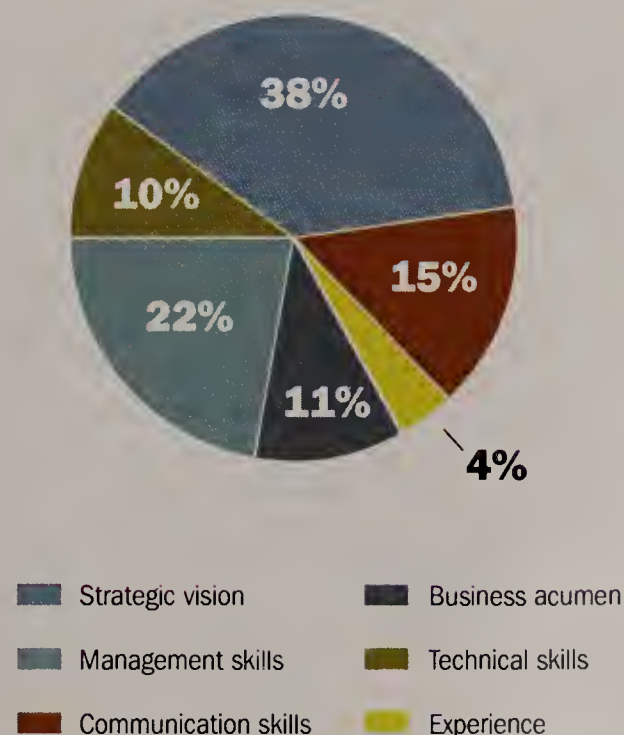


ILLUSTRATION BY ELWOOD SMITH

IN MANY WAYS, this year's study shows the continuation of the major trends revealed in past surveys. In particular, the IS executive's climb into the highest levels of the organization appears to be proceeding unabated. Where last year

Factors Used to Gauge IS Success

Responsiveness to customer requests	96.5%
Customer satisfaction levels	91.0%
Flexibility	84.1%
Error reduction	84.1%
Business-process competency	83.1%
Financial solidity/operating results	79.6%
Responsiveness to market change	72.1%
Cycle time	69.7%

76 percent of the executives surveyed said they thought their top IS executive was a key part of the executive decision-making process, this year that figure rose to 80 percent.

For the first time in the survey's history, executives thought "business acumen" and "communication skills" were more important than technical expertise.

What's more, 78 percent felt that, ideally, IS executives should be "extremely" or "very" involved in formulating business strategies and plans, compared to only 72 percent last year.

IS executives have again improved their standing with regard to producing a long-term IS strategic business mission and communicating that plan to senior executives. Seventy-six percent of respondents said their companies have such a mission, compared to 73 percent last year; and 75 percent said the plan was "well-understood" versus only 66 percent last year.

Senior executives' focus on the

technological expertise of their IS executives continues to decline, another indication of their increasing willingness to accept the senior IS executive as a top corporate decision-maker rather than as an expert in hardware and software. Only 10 percent of executives named technical expertise as the most important characteristic of an IS executive, compared to 14 percent who did so last year and 16 percent the year before. For the first time in the survey's history, executives thought "business acumen" and "communication skills" were more important than technical expertise, and "strategic vision" and "management skills" were again the most desired characteristics.

Brzezinski believes that the shrinking importance of technical issues reflects the growing comfort executives feel with the technological advances of the past five years. "There's a sense of stability in the technology arena," he said. "The battles over architectures and networks are over,

ly, only 18 percent felt that tight budgets were a key barrier to the IS executive's success, compared to 25 percent last year.

Executives also seem to be letting go of the notion that IS is supplying new competitive edges to the business. After growing for three years, the percentage of executives who rated highly the effectiveness of their top information executives in providing such an advantage dropped from 26 to 19. Instead, they seem to think more of IS execu-

The information executive's climb into the highest level of the organization appears to be proceeding unabated.

tives' ability to facilitate organizational change: Effectiveness ratings in that category jumped from 15 percent last year to 19 percent this year.

Reversal of Fortune

.....

IS executives in financial and manufacturing companies are trading places when it comes to playing a strategic role

One striking result of past CIO-Coopers & Lybrand executive surveys has been the disparity between the high-profile, strategic view of the IS executive held by companies in the financial industry and the less critical role he or she played in the manufacturing arena. The disparity was there this

And the IS executive's effectiveness in improving quality throughout the organization rocketed to 42 percent

Fewer executives felt a need to offer advice about leadership or personal style, and 27 percent felt no need to offer any advice at all, compared to 20 percent last year.

this year from 27 percent last year. "Executives are tired of talking about competitive edges," said Brzezinski. "They're looking for other kinds of improvement now."

To provide these improvements, noted Brzezinski, IS may have to make some changes of its own. "In some ways, IS has to be redefined," he said. "[Harvard Business School professor and consultant] Dick Nolan

laid out the management priorities of IS in the early 1970s, and IS executives have been following them ever since, despite the changes we've seen in the business. Executives are looking for some new approaches."

Part of that change may involve getting back to management basics. After all, traditional, centralized IS management used to have a carefully defined set of business practices for prioritizing and implementing projects. Now, said Brzezinski, a new set of practices is needed to ensure the provision of effective systems in a world dominated by radically different architectures and user demands. That assertion is reflected in how respondents rated criteria for measuring IS's effectiveness. While all other criteria were deemed neither more nor less important than last year, the ability

of IS "to deliver according to plan" was called "important" by 78 percent of executives, compared to 74 percent last year.

Still, the most important criterion for measuring IS's effectiveness

Importance of Items In Measuring IT Effectiveness

User satisfaction	85.6%
Delivery to plan	78.1%
Budget performance	59.2%
Overall ROI for the IS department	52.2%
Fulfillment of unusual need	39.8%
Gut feel	28.4%

continues to be "user satisfaction," listed by 85 percent of the respondents. Apparently, IS executives aren't making great headway in meeting this criterion: "Lack of end-user un-

year, too—except the trend was reversed.

In last year's survey, 91 percent of financial-company executives called their top information executive a key part of executive decision-making, while only 57 percent of manufacturing executives made the same claim. This year the manufacturing numbers jumped to 69 percent while the financial numbers actually *dropped* seven percent, narrowing last year's 34-point gap to a mere 15 points. Equally striking, the number of manufacturing executives who felt the top information executive ideally *should* be a key decision-maker rose a bit, from 11 to 14 percent, while the figure for financial executives plummeted from 47 to 26 percent. If the trend continues at this rate, next year's survey will place IS executives in manufacturing organizations solidly ahead of their financial counterparts in terms of

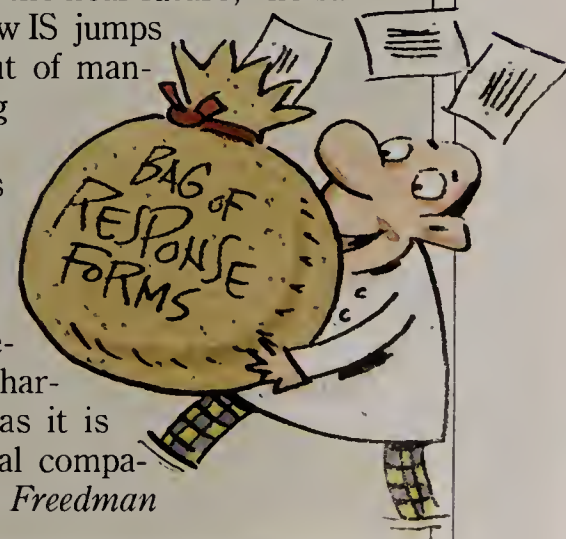
achieving a high-ranking role in the business.

What happened? According to Ronald Brzezinski, a partner at Coopers & Lybrand, the flip reflects two trends: the long-overdue realization by manufacturing companies that IS is vital to their success, and the need for financial companies to better digest the strategic advances that IS has introduced in their businesses over the past decade. "Right now, manufacturing companies are employing IS to change the business while financial companies have already made the changes and are looking to IS to simply improve the business," Brzezinski said.

The view that IS at financial organizations has simply reached a more mature stage is supported by the extent to which companies have put in place measurements for the success of long-term IS missions. At manufacturing com-

panies, which presumably are instituting more ambitious but harder-to-measure plans, that percentage has fallen from 83 percent last year to 75 percent this year; at financial companies that figure has jumped from 77 to 93 percent.

Brzezinski sees this situation continuing for a few more years. "The real opportunities for IS to impact the business will be in manufacturing for the near future," he said. "Right now IS jumps in and out of manufacturing business processes at discrete points. It has to become as harmonious as it is at financial companies."—D. Freedman



derstanding of how IT can help them" was the second-most-frequently mentioned barrier to IS executive success, and it was the only barrier to increase in importance over last year. (A tight budget was ranked first by one percentage point but dropped steeply from last year, when it was 10 percentage points higher than lack

A majority of manufacturing companies are finally looking to IS to play a strategic role—while financial companies may be shifting to more tactical concerns.

of end-user understanding.)

In addition, "lack of peer understanding of the IS mission" dropped below lack of end-user understanding for the first time, suggesting IS

tentially serious problem currently disguised by the wide availability of powerful PC hardware and software. PCs have satisfied much of the pent-up demand for information technology, he said, keeping end users relatively happy.

But unfortunately it's a temporary state. "Users are a notoriously fickle crowd," he said. "They may be happy this year, but it's an anomaly. They're going to be looking for a lot more from IS over the next few years, and IS executives have to be prepared to meet their needs and establish better understanding."

Ironically, while the survey indicated that all other barriers to the IS executive's success—including "lack of business acumen," "resistance of senior executives" and "lack of IS credibility"—are individually seen as less of a problem than they were last year, the number of executives who said there are *no* barriers dropped from seven percent to three percent this year. This result suggests a growing, if vague, concern with the difficulties IS executives will be facing, even while the traditional obstacles are substantially diminished.

Concern with the information executive's ability to deal with new organizational issues is also reflected in answers to the open-ended question, "What advice would you give your CIO?" Whereas last year 20 percent of these comments

"They haven't made the adjustment from the way they were working 10 years ago," "Don't lose sight of the smaller areas of our business," "Be customer-responsive," "Improve re-

Areas Where the CIO Is Very Effective

Improving IS responsiveness to customers	45.3%
Having a quality orientation	41.8%
Controlling costs	36.3%
Improving productivity	32.8%
Restructuring business processes	25.4%
Improving management effectiveness	20.9%
Creating/sustaining business advantage	19.4%
Facilitating and enabling organizational change	18.9%

Barriers to the CIO's Success

Budget constraints	25.4%
Lack of end-user perception of how much IT can help them	23.9%
Lack of peer understanding of IS mission	21.4%
Unrealistic expectations of IS	18.4%
Lack of credibility of the IS department	10.9%
Lack of internal customer focus	10.9%
Lack of external customer focus	6.5%
Lack of IT leadership	6.5%
Lack of business acumen	6.0%
Resistance by senior executives	6%
There are no barriers	3%

executives have done a better job selling their efforts to peers than to end users.

Brzezinski noted that the lack of end-user understanding of IS is a po-

could be categorized as advice about management issues such as developing people and understanding the business, this year 32 percent fell into this category. Comments included,

lations between the MIS department and management," and "Know the company better."

On the positive side, fewer executives felt a need to offer advice about leadership or personal style, and 27 percent felt no need to offer any advice at all, compared to 20 percent last year. Unfortunately, the number of executives who took the opportunity to compliment rather than criticize dropped to 10 from 14 percent.

Taken as a whole, said Brzezinski, the comments indicate that information executives have addressed many of the concerns pointed out by executives in past years, but they still haven't succeeded in allaying overall fears about their ability to keep on top of a rapidly changing environment. "The comments were kinder and gentler this year," Brzezinski said. "But they contained a warning to CIOs to get the right processes in place and do it fast. It's up to the CIO to convince users and executives that they're doing the right things." □□

David Freedman is a freelance writer based in Brookline, Mass.

Computron Seminars 1993
Business Process Reengineering:

*It's Later Than You Think,
But Easier Than You Were Told*

Send me information on the seminar at the following location(s):

- | | | | |
|---|--|--|--|
| ☐ Anaheim, CA | ☐ Houston, TX | ☐ Rockville, MD | ☐ Toronto, Canada |
| ☐ Atlanta, GA | ☐ Minneapolis, MN | ☐ Rye, NY | ☐ Valley Forge, PA |
| ☐ Burlington, MA | ☐ New York City, NY | ☐ San Francisco, CA | ☐ Vancouver, Canada |
| ☐ Cupertino, CA | ☐ Oak Brook, IL | ☐ Seattle, WA | |

Name _____

Title _____

Organization _____

Address _____

City _____ State _____ Zip _____

Phone _____

CALL

1-800-828-7660

FAX

1-201-935-7678



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

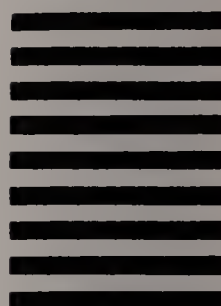
BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 4 RUTHERFORD, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

computron

Meadows Office Complex
301 Route 17 North
Rutherford, New Jersey 07070-9860



Reengineering, Client/Server, and Imaging/Workflow

*...Client/Server and Imaging/Workflow
are cardinal technologies of the 90s,
making reengineering and its
powerful ROI possible.*

*And reengineering is what many
of you may be doing right now, whether
you're formally redesigning the business
process enterprise-wide, or simply selecting
an accounting module, downsizing a
DP operation, finetuning a function, or
setting up a new business unit...*

For More Information
800-828-7660

Business Process Reengineering:

*It's Later Than You Think,
But Easier Than You Were Told.*

Computron Seminars 1993

Do you think that reengineering must start with a multi-year, multi-million dollar study? Or that it must wait until you find the time and budget, and select the right consulting firm?

You may be wrong. Client/server and imaging/workflow technologies have created a new generation of powerful applications which allow you to incrementally reengineer your operations by addressing key business functions individually.

If you're looking at replacing your financial or mission-critical business applications, this seminar will show you how you can use these new technologies to reengineer those business processes to reach new levels of automation (i.e. workflow-enabled A/P systems which start in the mail room, route vouchers automatically, and greatly boost productivity).

This seminar series will also help you understand how to start or better manage your reengineering efforts. You will learn how to identify the best candidate areas in your organization for workflow pilot implementations, and how to evaluate the applications, technologies and methodologies you will require to enhance your strategic goals. You will see that reengineering can be done more easily and less expensively than you ever imagined!

Seminars will be held in the following cities:

Anaheim, CA	Minneapolis, MN	San Francisco, CA
Atlanta, GA	New York City, NY	Seattle, WA
Burlington, MA	Oak Brook, IL	Toronto, Canada
Cupertino, CA	Rockville, MD	Valley Forge, PA
Houston, TX	Rye, NY	Vancouver, Canada

Presented by:

computron



With Corporate Hosts:



HEWLETT
PACKARD

COMPUTERWORLD

INTRODUCING NEW CA-UNICENTER: MAKING THE WORLD SAFE FOR UNIX.

Never fear.

New CA-UNICENTER® is here.

The first complete systems management software for UNIX. But what it really is, is complete peace of mind.

Never again will you worry about security.

Control.

Or administration.

CA-UNICENTER for UNIX gives you all the systems management technology you've been



CA's Computing
Architecture
For The 90s.

waiting for.

Everything you need to control your entire UNIX system and turn it into a safe, productive environment for mission-critical computing.



Created by the experts in systems management, CA-UNICENTER combines everything CA has learned over the past two decades as the world's leading systems software company.

It's the most powerful, flexible and easy-to-use systems software ever developed.

And it's available today.

So why take a chance?

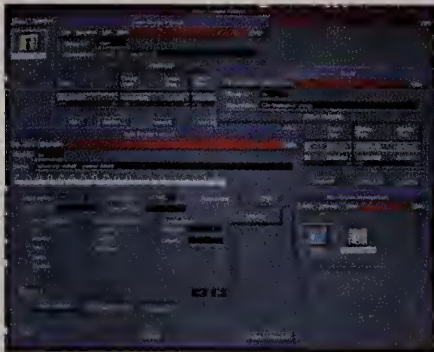
Call 1-800 CALL CAI

today for a free Demo Disk and complete information on how we're making the world safe for UNIX.



And how our new CA-UNICENTER can make UNIX safe for you.

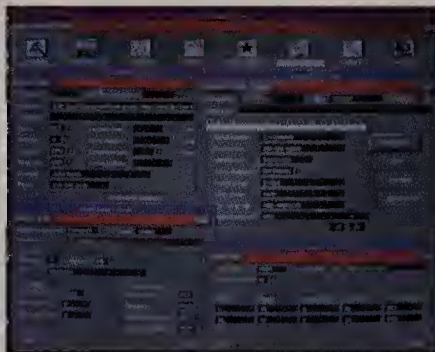
CA-UNICENTER provides Security, Storage Management, Problem Management, Resource Accounting, Console Automation, Print/Report Management, Scheduling and Workload Balancing Solutions.



Security Control gives you single-point control for the entire system. It provides the first and only method for limiting authority of superusers.



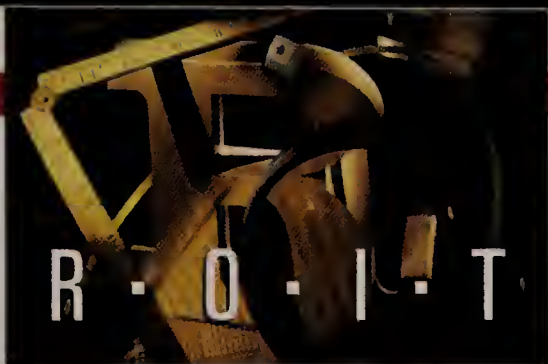
Storage Management ensures files are backed up and archived. Frees space when file systems become full and keeps backup and archived files safe from accidental or intentional destruction.



Help Desk includes Machine Generated Problem Tracking and Priority Escalation—so people are immediately notified of critical problems.



Resource Accounting lets you customize billing any way you want—so the right bill has the right information and goes to the right group.



The ROIT Stuff

**Determining
the payback
of information
systems—
and being able
to deliver
the goods—
is becoming
an important
part of the
IS role**

THE REAL LANGUAGE OF BUSINESS

Compared to the heavy accent now being placed upon ROI, competitive advantage was just small talk.

Page 36

A WATERTIGHT CASE

The Perrier Group of America used regionalization, supported by a comprehensive IT plan, to reduce head count and improve service.

Page 40

THE ENGINE OF CHANGE

With a crumbling infrastructure impeding its services, the NYC Transit Authority looked to a new materials-management system to put it back on track.

Page 62

THE ROAD TO RECOVERY

Materials management was a problem at the Medical Center of Delaware, too. A new system provided a fiscal shot in the arm.

Page 68

AN I.S. ENERGY AUDIT

In the process of improving service to customers, Lone Star Gas streamlined its operations and saved a bundle.

Page 72

BARGAINING POWER

By consolidating its worldwide purchasing activities in a single system, Texas Instruments got even more than it bargained for.

Page 76

SWIMMING IN BLACK INK

A Travelers division that prints benefits booklets shaved months off the publishing cycle and more than 40 percent off the cost per page.

Page 82



The REAL Language of

COMPARED TO THE HEAVY ACCENT now being placed upon ROI, competitive advantage was just small talk. Inquiring CEOs want to know: "How much bang is the corporate technology buck really buying?"

BY ALLAN E. ALTER



I F MONEY TALKS, then ROI is one of its most common languages. Yet CIOs seem to have a hard time achieving fluency.

Despite all the money their companies have spent on information technology, CIOs still struggle to explain the benefits of an IT investment in hard dollars. They are more likely to justify IT expenditures by citing improvements in productivity, response time, customer complaints, error rates and nonfiscal measures than by measuring the return on investment in information technology (ROIT).

Nonfinancial measures are useful and valid, but they are rarely considered sufficient by the CEOs and CFOs who command the power of the purse. These ulti-

mate arbiters frequently insist on proof that money spent on IT results in earnings and savings that surpass the investment. CIOs often feel caught between an irresistible force and an immovable object as they are compelled to provide financial justification for an investment that resists such hard measurements.

ROIT analysis can do more than keep CIOs in the good graces of their bosses. It can also direct them to the most lucrative opportunities for using technology. It can be a tool for evaluating existing and potential systems and a mental exercise to sharpen strategic thinking. And it can serve as a common language for explaining information systems to other executives.

For all these reasons, CIOs should learn to speak ROI more effectively.

They need to find more techniques for measuring and demonstrating hard-dollar benefits and for persuasively articulating soft benefits—where possible, in hard-dollar terms.

We hope this issue of CIO will inspire by example. The six profiles contained here were culled from responses to our call for entries last summer, in which we requested examples of successful systems that demonstrated a clear, strong ROIT. We asked for the financial details of major up-and-running strategic sys-

generate additional revenue by matching medical supplies in a timely manner with the patients who should pay for them.

CIOs need not labor alone on the ROIT puzzle. Texas Instruments developed an ROIT approach for a new procurement system while prototyping the system with users. TI's IS staff learned what to measure by asking users what would be valuable to them.

As we pored over the submissions and the numbers, we resisted the temptation to become bean counters ourselves. Yes,

● Business

tems. Thus each of the following profiles describes a system, its costs, the savings and revenues it produced and, most importantly, the methods its sponsors used to prove the return on their IT investment.

The companies we've written about have found ways to demonstrate the value of technology in dollars. In the case of the New York City Transit Authority, the benefits are obvious and straightforward: fewer employees and lower inventory, adding up to impressive savings. (If anyone in your organization questions the value of computers, send them to the Brooklyn train yards at once.)

Other submissions displayed an imaginative approach to accounting: a knack for uncovering benefits and finding ways to convert them into dollars. Rowan Snyder, corporate director of MIS at Perrier Group of America Inc., found many ways to demonstrate how a customer-order information system could add fizz to Perrier's bottom line. A somewhat similar system increased revenues for Lone Star Gas. The Travelers used new technology to squeeze not only money but precious time out of its massive document-publishing operations. And the Medical Center of Delaware reengineered its materials-management process, enabling it to

we wanted hard numbers. But we also understand that CIOs and their companies should never become slaves to old, even obsolete, accounting formulas. After all, not every IS investment decision should be made strictly on the basis of ROI. An unbending insistence upon quantifiable returns can lead an organization to pass up investing in systems or applications that are ROI-resistant but still significant and worthwhile. Some of the most important advantages gained through IT, such as winning customer loyalty by improving quality and service, are hard to translate into dollars. An organization has to have the wisdom to know when to waive ROI for good reasons.

We hope the stories that follow provide some fresh ideas when budget time rolls around. We also know you'll want more ideas; so we invite you to join us in future issues and conferences as we continue the search for ROIT. ☐

You know
your users will like
Macintosh.



Here's why you will.

There's nothing new about users liking Macintosh. The news is that now Apple® Macintosh® has more of what IS professionals need for client/server computing.

Start with the fact that Macintosh connects to virtually any host, file server, or database through any network. So you can build for the future while you leverage the systems that are in place today: everything from an IBM® mainframe to LAN Servers running NetWare®.

With Macintosh you can capitalize on the power and flexibility of personal computers to develop applications quickly, whether you're programming in C, or customizing a shrink-wrapped application.

Apple is committed to the delivery of cross-platform tools that provide a complete range of client/server solutions for Information Systems professionals. That's why today's Macintosh integrates seamlessly with major LAN systems and network architectures such as SNA and OSI. It also supports major protocols and standards such as TCP/IP and X.25. And with applications such as PATHWORKS™, you can deliver client/server transaction processing systems.

See for yourself. Send for any one of the videotapes below. They will provide you with information you're sure to like.



Choose any one of these three free videos. Just call 1-800-635-9550, ext. 230.



Client/Server Computing.
Learn how other companies are using client/server technology today and about Apple's VITAL Architecture.



Applications Development.
Discover how other companies are using Macintosh to develop a broad range of applications quickly, using a wide variety of development tools.



Connectivity. See how the modular architecture and built-in networking of Macintosh combine with Apple's support for major protocols and standards to deliver a wide range of network services.



**THE PERRIER GROUP
OF AMERICA**

A Watertight Case

RETURN
ON INVESTMENT
FROM
INFORMATION
TECHNOLOGY

PERRIER PROVED THAT regionalization, supported by a comprehensive IT plan, could reduce head count and quench its customers' thirst for improved service

BY MEGAN SANTOSUS



HERE'S WATER, water everywhere, and while the abundance of bottled H₂O is good news for thirsty consumers, it spells tough competition for The Perrier Group of America Inc.

In an industry characterized by fragmented competition, the Greenwich, Conn.-based company was in a position to capitalize on its size and resources. Perrier chose to overhaul its route operations, which handles home and office bottled-water distribution, in order to bolster its standing in those markets. To accomplish the dual strategic goals of reducing costs and increasing its customer-retention rate through improved service, the company consolidated redundant functions and departments at 40 stand-alone branch offices into regional centers. By converting to a regional mode, Perrier hoped to achieve coherence and consistency in procedures, functions, customer service and information.

The implementation of a comprehensive information technology plan in support of regionalization was essential to reorganiz-

ing the administrative infrastructure. "From an ROI point of view, you do better if you let the technology work horizontally throughout the company," said Rowan Snyder, the corporate director of MIS who led the regionalization effort. Snyder uses the term "Regional Operations" to include data processing and administrative branch business functions.

Efforts to convert to a regional model of operation began in 1989, with completion scheduled for the end of 1993. The benefits to date have been impressive, with a \$5 million annual investment netting an annual return of \$15.4 million. Over the five-year life of the plan, Perrier expects to pocket a cool \$77 million in savings, primarily as a result of reduced head count and improved productivity.

It wasn't that business was bad at the time regionalization was planned. Perrier's market share for route operations varied from 30 to 70 percent by region. Rather, in anticipation of tougher competition in the future and increasingly sophisticated customers, forward-thinking management viewed the change as a dose of preventive medicine.

"What people forget is that you may need to change things to keep a customer," said Snyder. Short of changing the product line,

"you have to change your business model," he said.

Before 1989, each of the 40 branches operated by five Perrier companies (Arrowhead, Great Bear, Ozarka/Oasis, Poland Spring and Zephyrhills) and located throughout the country maintained its own distribution, data-entry, teleservice, and credit and collection personnel. In addition, each branch had its own decentralized minicomputer and

THE BOTTOM LINE

GROSS RETURN

Direct savings

- ▶ Reduced head count: \$ 4.2 M annually
- ▶ Reduced operating expenses: \$3.8 M annually
- ▶ Increased productivity: \$12 M annually

Indirect savings

- ▶ Reduced facilities costs: \$400,000 annually

Total annual ROI: \$20.4 M

COSTS

- ▶ Acquisition of hardware and software; systems integration and training: \$5 M one-time cost
- ▶ Maintenance costs: \$2 M annually
- ▶ Operating costs: \$2 M annually

First-year total costs: \$9 M

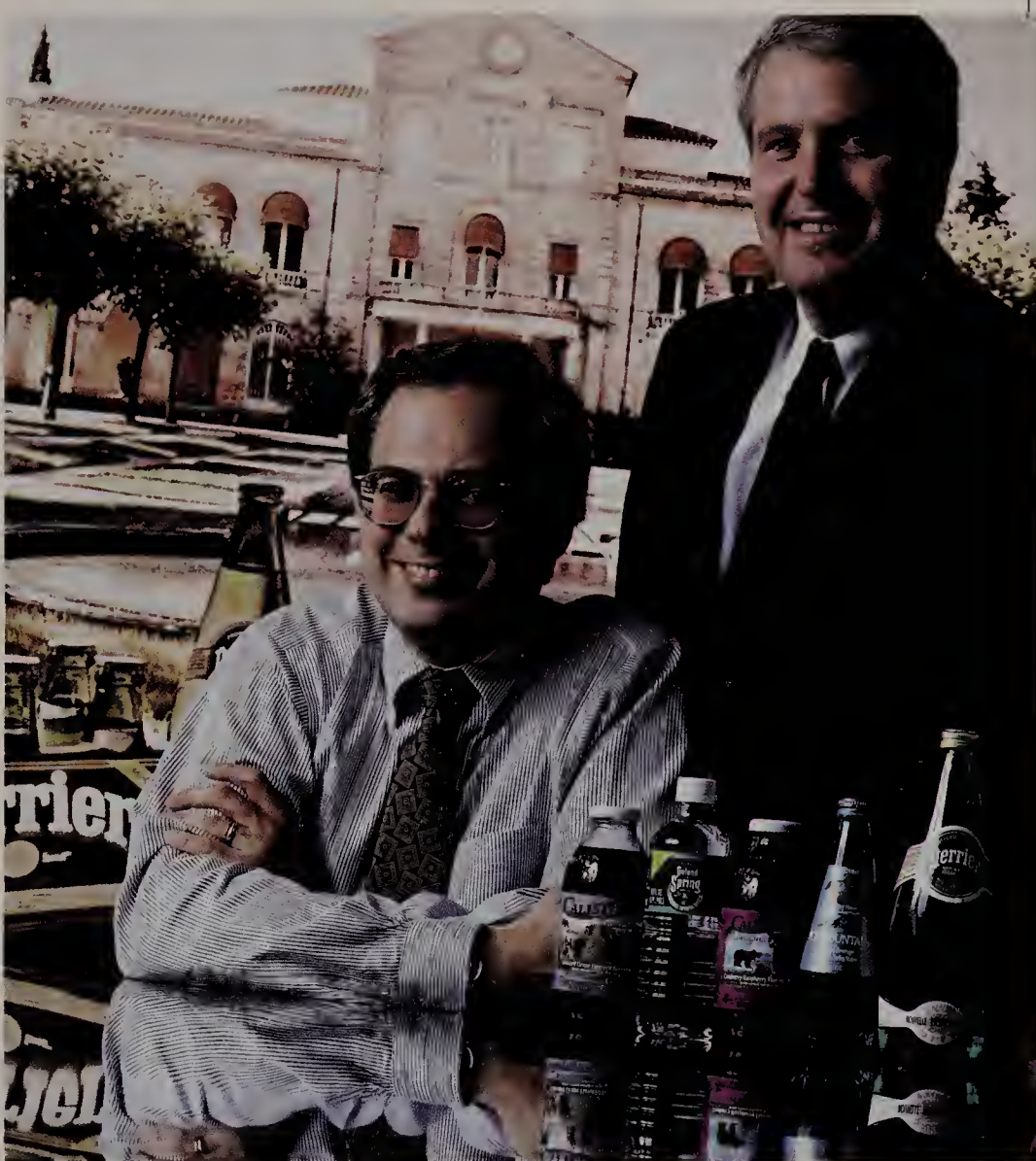
Subsequent total annual costs: \$4 M

First-year net ROI: \$11.4 M

Subsequent net annual ROI: \$15.4 M

phone system. "Essentially, it was like operating 40 individual businesses all operating their own departments," said James Waldeck, Perrier's senior vice president of the route division.

Such duplication of back-office operations was inefficient in terms of training employees, providing customer service and buying equipment. By combining data-entry, teleservice and credit and collection functions at one of three planned regional support centers, Perrier expected to handle the same amount of administrative work with fewer people. The company established two regional data centers to serve the sup-



ROWAN SNYDER (LEFT) AND JAMES WALDEK SAW REGIONALIZATION AS A DOSE OF PREVENTIVE MEDICINE.

port centers. Located in Los Angeles and Greenwich, the data centers house computers, communications equipment, and technical and support personnel. Branches remain, but they contain only small staffs of distribution and service employees.

PERRIER COULD NOT effect this regionalization without implementing new hardware and software technologies. The technical agenda consisted of overhauling and enhancing the existing route-management software used by distribution personnel, creating common databases, providing handheld computers for drivers, implementing advanced telecommunications (including voice mail, least-cost routing and interactive voice response), and networking the branches and support and data centers with headquarters. Perrier wanted to standardize equipment in order to save money and ensure coherence in training and maintenance. "By consolidating equipment," said Snyder, "we wanted to take advantage of volume discounts and establish partnerships with suppliers."

Perrier looked at the capital expenditures and tried to quantify hard and soft benefits. Any soft benefits that could not be quantified were discarded.

All route operations are now regionalized, although certain technologies—such as handheld computers and an interactive voice-response system—have yet to be completely rolled out. Branches are networked to regional centers, and PC-equipped end users are linked with DEC Pathworks for LANs. The 40 General Automation systems have been replaced by four RISC-based servers running Unix for transaction processing.

TECHNICAL PROFILE

OLD SYSTEM:

40 standalone General Automation minicomputers; independent telecommunications systems

NEW SYSTEM:

Software: System software developed in-house; handheld software developed by Norand Corp.

Architecture: Fractional T1s; Ethernet network with TCP/IP or DEC LAT/DECnet connecting PCs and RISC servers

Hardware: IBM PS/2s and compatibles and DECSystem RISC servers; Norand Corp. handheld computers; Northern Telecom PBXs and switches

The route-management software overhaul was done in-house and provides enhanced reporting capabilities, improved data integrity and support for multi-brand transactions. MCI was selected as the common telecommunications carrier, and Northern Telecom provided switches for PBXs and voice mail. The Norand Corp. provided handheld computers and developed the proprietary software for Perrier.

Field-delivery employees and teleservice agents now have access to consolidated and consistent customer-order information, resulting in improved customer service. In one instance, a complaining customer actually apologized to a driver who used his handheld to document that service calls had indeed been made.

IN DETERMINING ROIT, Snyder considered the rate of return on the initial cash outlay for specific projects. Returns were calculated as cash flow of future savings and/or new revenues. "We looked at the capital expenditures and tried to quantify everything, including hard and soft benefits," he said. Any soft benefits that could not be quantified were discarded.

The new technology has directly affected the bottom line. The route-management software overhaul alone has reduced head count by 32 for an annual savings of \$800,000. The handheld computers have eliminated 59 full-time positions, saving \$2.3 million annually, while also reducing costs for printing and storing invoices by \$565,000.

Moving to regional operations has also reduced head count by eliminating the need for branch computer managers and clerical employees. All told, the company was able to reduce personnel by 275, mostly in data-entry departments, for an annual sav-

The improvement in customer service corresponds directly with an increased rate of customer retention and improved overall market share.

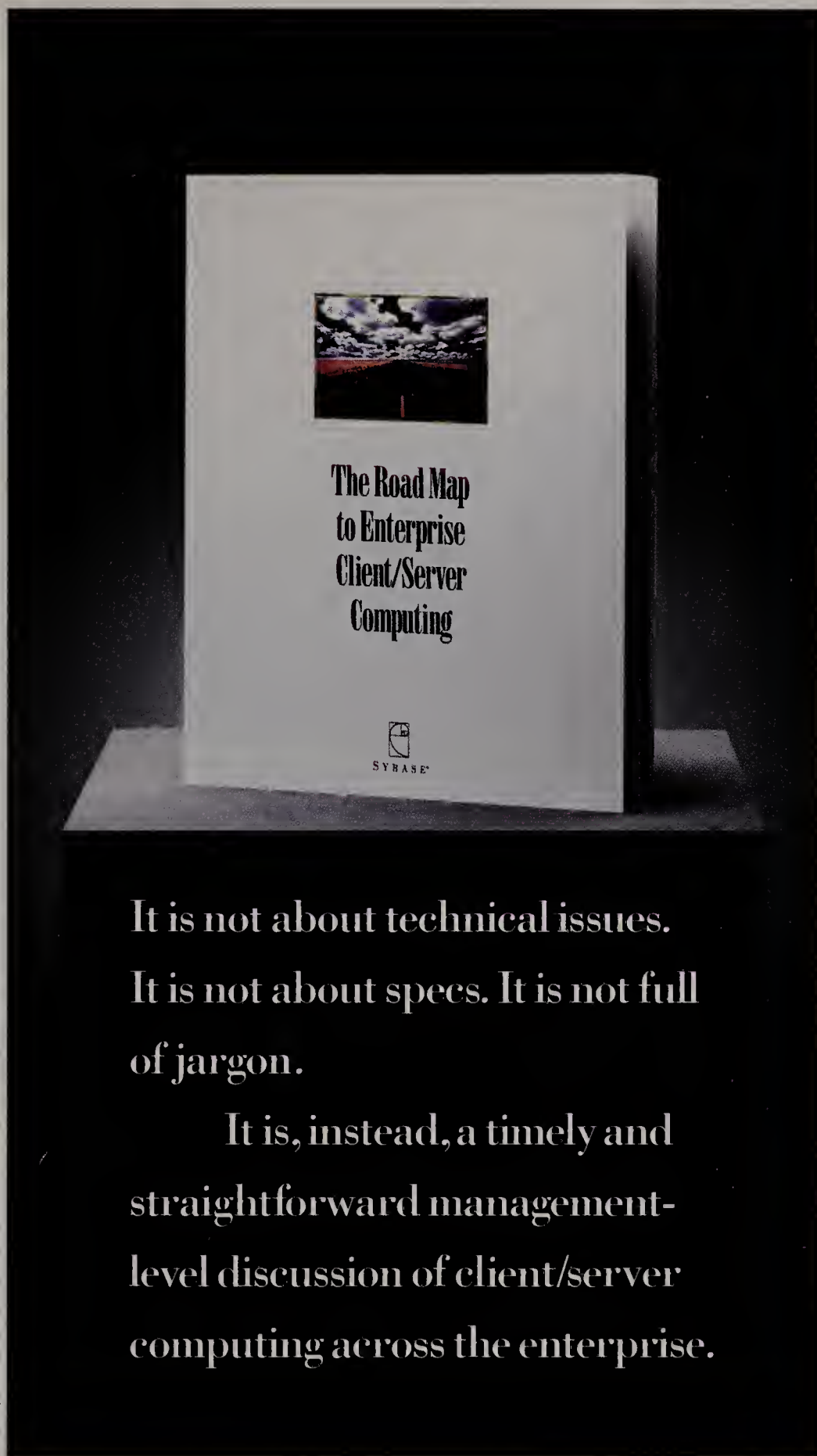
ings of \$4.2 million. Since branches are now more stable in size, \$400,000 is pared from facilities costs by avoiding the need to move. (Previously, Perrier was dealing with an average of two moves a year corporatewide.)

The improvement in customer service corresponds directly with an increased rate of customer retention and improved overall market share. Putting a dollar value on retention rate is somewhat tricky. "The key," Snyder said, "is to recognize that it is very definitely costly to lose customers." Although quit-rate figures are confidential, Waldeck reports that market share has grown 2 percent while revenues have increased "significantly."

For Waldeck, the biggest benefit so far has been an improved ability to manage distributed operations and personnel. With uniform training and centralized hardware and software support, regional operations are much more cost-effective. Equipping the credit department with sophisticated telecommunications capabilities has enabled Perrier to react more quickly to customers. However, if the quit rate continues to decrease over the next few years, he expects substantially greater savings.

Waldeck also credits regional operations with helping Perrier stay ahead of the competition. "The water industry is in some tough times right now," he said. "While everyone is struggling to stay even, we're doing much better this year." ☐

For your personal copy,



It is not about technical issues.
It is not about specs. It is not full
of jargon.

It is, instead, a timely and
straightforward management-
level discussion of client/server
computing across the enterprise.

© 1992 Sybase, Inc.

call 1-800-8-SYBASE.

PEOPLE WHO KNOW RETAIL CHOOSE SCO



Hospitality...

"We use SCO system software on the cost-effective PCs of our choice to manage guest services at over 300 Marriott Courtyard and Fairfield Inn hotels."

Bob Bennett
Vice President,
Information Systems
Courtyard by Marriott
Fairfield Inn by Marriott

Restaurants...

"Our networked, multi-tasking SCO systems enable 2,000 managers to devote more time to customers and improve our bottom line."

Ken Ray
Manager of
Information Systems
Toco Bell



Consumer Electronics..

"Our 4,700 stores use PC-based multiuser SCO systems to integrate point of sale and accounting while updating headquarters at any time."

Henry Tieding
Director of
Microcomputer Systems
Tandy Corporation



Home Improvement...

"Over 1,900 Sherwin-Williams stores use powerful SCO point-of-sale solutions that also communicate important sales data to the home office."

Max Rice
Manager of Systems Development
Sherwin-Williams



When it comes to comprehensive retail solutions, industry leaders know the value of SCO® open systems software. Running on standard 386/486 computers, SCO® UNIX® solutions provide high performance for every aspect of retail management, including accounting, inventory, distribution, and point of sale. SCO systems process transactions fast and run applications efficiently at a cost per user that beats minis, DOS LANs, or any other platform. That's why over five million people in business rely on the company that ships more packaged UNIX Systems than any other. To get to know SCO, call 1-800-SCO-5738 (726-5738) today!

SCO 
OPEN SYSTEMS SOFTWARE
The Business ChoiceSM



Subscribe And Save.

~~\$94~~* **\$59**

Yes, enter my one-year subscription to *CIO* magazine and bill me later for only \$59, a savings of over 37% off the basic rate.

Name

Title

Company

Address

City State Zip

The basic one-year
subscription rate for
CIO magazine is \$94.

**This is a domestic rate only (Canada & US). The foreign rate is \$175 US.*

JJ93

**PROCESS
IMMEDIATELY**



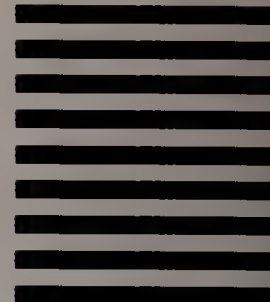
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 1020 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

CIO Magazine
Attn: Circulation Department
P.O. Box 9208
Framingham, MA 01701-9900



CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

CONFERENCE SUPPLEMENT
TO CIO MAGAZINE

La Paloma
Tucson, Arizona
March 7-10, 1993

CIO PERSPECTIVES SERIES

IT Assets: Balancing People, Property & Performance

Getting Your Assets
in Gear

The Era of Human
Capital

Achieving a Global
Geofinance Vision

The Virtual Corporation

Benchmarking & TDQM

Intellectual Assets



CIO

CONFERENCE SUPPLEMENT

Conference Overview

Joe Levy and Lynda Rosenthal

Getting Your Assets in Gear

An article about a business world hungry for payback and profit.

Agenda

Annotated information about each session and scheduled activities.

Companion Program

Bring your companion! He or she will join you for conference receptions and meals while participating in a separate program.

La Paloma

Tucson's top resort, including a Jack Nicklaus-designed golf course.

Conference Hosts

Select industry product and service providers will display key technologies.

Enrollment Form

Complete and return to guarantee your spot.

Call 800-366-0246 to enroll now

Conference Overview

If you are a CIO, senior IT executive, technology investment counselor, CFO, corporate or business development strategist, COO, corporate counsel, asset manager or company president or chairman, you will want to attend this program.

When organizations define their asset bases, they don't traditionally consider people or information technology as part of the formula. Yet these two components are the key differentiators between viability and extinction. Information technology is essential to an organization's critical asset goals. In fact, IT must be a core component of business practice, one of the "big rules."

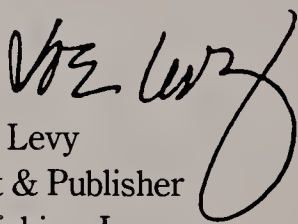
The next CIO Perspectives conference, **IT Assets: Balancing People, Property & Performance**, addresses the combination of people and non-traditional property, integrated for peak performance. Jim Wetherbe, director of MIS research and professor of MIS at the University of Minnesota's Carlson School of Management will moderate the program.

Our presenters will draw a fusion map, show us how to perform a triple management feat and examine re-engineering and benchmarking. International managers will bring other cultures to the podium. CIO's editor-in-chief will lead a panel on the CIO as an IT asset. We'll discuss human capital, getting maximum value from all your assets, and the 21st century corporation.

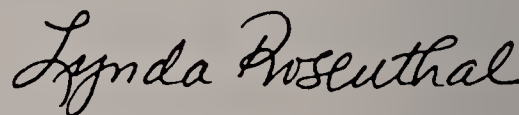
Our corporate hosts will provide an array of concurrent sessions on best practices, maximizing software investments, client/server, TDQM, optimizing human assets and employee satisfaction, technology acquisition channels, workgroup computing and open systems. The concurrent sessions will be repeated three times.

To join us at the wonderful Tucson resort, La Paloma, and immerse yourself in a three-day discussion of IT assets, complete the enrollment form on the back cover and fax it to us at 508-872-0618. Or call us and we'll be happy to take your information over the phone.

Regards,



Joseph L. Levy
President & Publisher
CIO Publishing, Inc.



Lynda Rosenthal
Vice President & General Manager
Executive Programs



Getting your assets in gear

Companies that fail to make the most

of their IT and human resources might

as well be sewing money in a mattress.

Smart CIOs will maximize the value of

those assets through careful tracking

and creative deployment.

BY ALLAN E. ALTER

How can I best use the assets I control to boost my company's performance? All managers must ask themselves this question, whether they are in charge of a major manufacturing operation or the mail room. But in the 1990s, the CIO's answer is the one that matters most.

Structural changes in the world economy are elevating organizations' IT assets to a new level. CIOs are playing for higher stakes than ever before, because the chips they control are worth more. Robert B. Reich, the Harvard University political economist, author of *The Work of Nations: Preparing Ourselves for 21st Century Capitalism*, and adviser to Bill Clinton, contends that information technology professionals will play a leading role in corporate life. "The successful corporation will be organized around people and information technology in much the same way that a successful manufacturing corporation 50 years ago was organized around capital assets," said Reich. "Human resource managers and information technology professionals will be in leading positions. The corporation of the future will be defined by the quality of its people and technological infrastructure."

The reason, said Reich, is that few industries still present significant barriers to new players, in part because "new technologies allow easy entry into industries and markets. The high-volume standardized production systems of the past can now be replicated anywhere around the world." That leaves human resources as a company's key differentiator. "Human capital, in the form of those who identify and solve new problems, will create competitive advantage," he explained. "The future corporation, in effect, will be an 'idea factory' in which the latest insights and inventions around the world are continuously applied to solving new problems of customers and clients."



The corporation of the future will
be defined by the quality of its people
and technological infrastructure."

ROBERT B. REICH

Only one IS executive out of five can say what IT assets they have. One out of 30 knows how their assets are changing. Only one in 100 can say anything about the quality of their asset base."

HOWARD A. RUBIN

IT professionals will enable their company's human resources to solve customers' problems. "Technologies will allow such a broad array of possible solutions that the responsibility of the new corporation and its agents will be to help counsel customers about their own needs," said Reich. "This relationship is directly analogous to that of a decorator or architect, who helps clients understand not only what is technologically available, but also what they really want and need."

According to Bill Davidow, author of *The Virtual Corporation: Structuring and Revitalizing the Corporation for the 21st Century*, the increasing demand for speed is one of the principal problems on which technology will be brought to bear. Customers want what Davidow calls "virtual products and services"—quality delivered immediately. For example, people are no longer content to just buy eye glasses or cars; they want eye glasses delivered in 60 minutes and cars built to order and delivered in a few days (as is now done in Japan). Virtual corporations will need IT to swiftly design and build products, create new business processes, and track changes in their markets and in their customers' tastes.

Twenty-first-century capitalism will provide IS executives with extraordinary opportunities to contribute to their organization. But how can CIOs derive maximum leverage from their IT assets?

One way is to treat them as intellectual assets. The Skandia Group, a multinational financial services and insurance company, headquartered in Stockholm, Sweden, has appointed a "director of intellectual capital." The role of Leif Edvinsson is to identify and make the most of Skandia's intellectual assets: the experience and knowledge of its employees; the information it possesses about its products, customers and markets; and its organizational

structures, business procedures and information systems. "IT helps by capturing experience or organizational [processes] and transporting skills through networks between business units around the world," said Edvinsson.

One example of how Skandia capitalizes on intellectual assets is a system that enabled it to get a new branch in Berlin up and running in six months, instead of the company's usual two years. Known as "the Prototype," the system contains all the technology and information on business processes and other areas required to start up a new office. The Prototype provides Skandia's agents with descriptions of the company's financial products and administrative procedures; it also provides expert systems to help guide day-to-day operations and the networking capabilities needed to connect new offices with Stockholm. Edvinsson believes the Prototype will help Skandia maintain its growth rate of 40 percent and expand its markets.

Another company finding innovative ways to leverage its IT and human assets is Toronto-based mortgage lender FirstLine Trust. Nearly three years ago the new CEO flattened FirstLine into just three layers and restructured the company into cross-functional teams called "pods." Each pod was given responsibility for conducting business in a region of Canada, or undertaking an important task. One task was to design an efficient, "right-sized" corporate information system to support FirstLine's new business structure. A multi-functional pod, joining users from all departments with IS staff members, created the new, PC-based system.

Janet Wilson, FirstLine's vice president of information technology, found the boundaries between IS staff and users had to dissolve somewhat for the effort to work. "In this PC environment users have to get involved and become fully

knowledgeable about the system," she explained. "And it became even more necessary for IS people to become business people so they could understand what was going on."

While the transition was not problem-free, the result has been lower IT costs and higher productivity. Total IT cost per mortgage processed has declined from \$120 to \$66. Loan approvals now take less than 24 hours. Mortgage-processing staff process 40 applications per person per month, up from 22. IS staff productivity has also increased—it now takes three days instead of four weeks to implement a new mortgage product on the system.

Innovative thinking about how to deploy IT assets is important—but CIOs must also track their assets, and few IS organizations do this, according to Howard A. Rubin, a professor of computer science at Hunter College in New York, and the founder of Howard Rubin & Associates in Lexington, Mass.

"Only one IS executive out of five can say what IT assets they have," said Rubin. "One out of 30 knows how their assets are changing. Only one in 100 can say anything about the quality of their asset base." Most of the IS executives Rubin has surveyed don't even know the replacement value of their systems, let alone their business value. These CIOs are in a poor position to analyze how their IT assets provide real business value and contribute to the success of the organization.

So how can CIOs best use the assets they control to boost their company's performance? Focus on ways to solve their customers' problems. Support innovative methods for making the most of their companies' human assets. And measure and track the IT assets under their stewardship. Exciting work? Yes. Difficult? That too. But no one ever said high-stakes poker was easy.

Skandia's growth requires that we cultivate and capitalize upon intangible [intellectual] assets. IT helps by capturing experience or organizational [processes] and transporting skills through networks between business units around the world."

LEIF EDVINSSON

Making the most of IT

Are you taking these steps to turn IT from overhead into an asset?

Create better business processes. Business-process redesign, reengineering, total quality management, virtual enterprises, concurrent engineering—all require IT to revamp the way enterprises work.

Demonstrate the ROI on technology assets. IT must also be perceived as an asset by top executives. ROI analysis, especially when it demonstrates hard dollar gains or savings, helps CEOs see IT as an asset.

Focus on the customer and the market. Internal processes are important, but to maximize performance, companies need systems that provide information on markets, customers, and competitors.

Help management make better decisions. Executives want systems that can distill mountains of data into gold nuggets of useful information for decision-making.

Increase the value of your human assets. People are a company's greatest differentiator, according to Robert Reich, the Harvard University political economist and author.

Track your IT assets. It's difficult for CIOs to determine how IT contributes to the business if they don't know what their IT assets are and their worth, said Howard Rubin, president of Howard Rubin & Associates in Lexington, Mass.

Treat information as an asset. By treating information as intellectual capital, companies can turn information, processes, and technology into an exploitable asset.

IT Assets: Balancing People, Property & Performance

March 7-10, 1993

San Francisco
TMC-111, Alameda

AGENDA

SUNDAY, MARCH 7

2-6:00 pm

Conference Registration

7-9:00 am

Networking Reception

9-10:30 pm

**Dessert & Coffee hosted
by Racal-Datacom**

MONDAY, MARCH 8

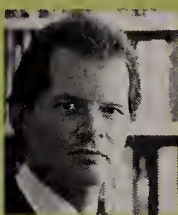
7-8:00 am

Breakfast

8-9:05 am

**Welcome & Opening
Remarks**

Joseph L. Levy
President & Publisher
CIO Publishing, Inc.



Conference Moderator:
Jim Wetherbe
Director, MIS Research
Center & Professor of
MIS Carlson School of
Management,
University of Minnesota

Jim Wetherbe will kick-start the conference with some context-setting remarks on IT assets.

Achieving Peak Performance Through Networking People and Technology

Jim Wetherbe
Director, MIS Research Center
& Professor of MIS
Carlson School of Management,
University of Minnesota

Competitive pressures have increased the need for organizations to optimize the performance of all assets. Some organizations over-emphasize systems, ignoring people. Other enterprises do focus on human issues neglecting the necessary infrastructure to support the people.

Jim will explore how computing technology has moved from hierarchical mainframe approaches to network-based, flattened organizations. Achieving this transition is the key to optimizing assets. Techniques lag behind technologies. One concept is to use software tools to customize motivational reward systems for employees. MOTIVATOR™, one such tool, will be available for participants to develop and assess their own motivational profile. To flourish in the 21st Century, the successful organization of the future will leverage human, hard and intangible assets.

9:05-9:55 am

I'm Their Leader: Which Way Did They Go?



Kathy Brittain White
Vice President
Corporate Services
Guilford Mills

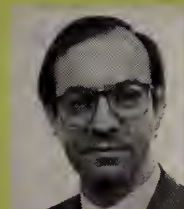
In today's tough business climate, close scrutiny by senior management and the pressure to produce more with less make the CIO's position one of the most difficult in the organization. In response, CIOs must accomplish a triple management feat. They must manage their relationship with top executives. They must manage their MIS staffs so as to maintain morale, foster innovation and improve productivity. And they must manage themselves, in order to ensure survival. This session deals with all three issues, highlighting research conducted in Fortune 500 companies.

9:55-10:25 am

Coffee Break

10:25-11:15 pm

Using IT to Achieve a Global Vision in Geofinance



**Jean-Paul van
Keirsbilck**
General Manager
Processing &
Automation
Kredietbank (Brussels)

In the 1980s, Brussels-based Kredietbank began to realize its vision of becoming a global bank with a presence beyond New York and London. But the pace of change in the financial global village made a new approach to international banking necessary.

In response to these changes, Kredietbank adopted an IT system that supports the critical requirements for interorganizational dealings and risk management. An International Banking System (IBS) was also developed. This technology-enabled, fully integrated approach to geofinance has given Kredietbank an important competitive advantage.

11:15am-12:05 pm

The Virtual Corporation: Landscape of the Future



Bill Davidow
General Partner
Mohr Davidow Ventures

It is becoming increasingly obvious that the very nature of business is information. The explosive advance of technology, new forms of information, thinking machines—all are propelling traditional businesses to become virtual corporations, producing virtual products and services. Seamless enterprises will produce mass customized products instantaneously in response to customer demand. This process will radically redefine what it means to be a business leader, an employee and a customer in 21st-century America. And new challenges in harnessing the power of information processing will put IS executives in the spotlight as never before.

12:05-1:30 pm

Luncheon

1:30-6:30 pm

Networking & Concurrent Sessions

Optional concurrent session and recreational activities are available

2:00 pm

Concurrent Sessions

6:45-7:30 pm

Reception

7:30-9:30 pm

Dinner

TUESDAY, MARCH 9

7:00-8:00 am

Continental Breakfast

8:00-8:50 am

Benchmarking to Find Hidden IT Dollars



Dr. Howard A. Rubin
Professor & Former
Chair, Department of
Computer Science
Hunter College of
the City University of
New York

Currently, 80 percent of IT organizations are facing budgetary pressures. This change in funding is chiefly caused by the perception that IT is a "black hole" drawing in resources, energy and dollars. Meanwhile, little is understood about what value the business is getting from its investment. Few IT

organizations know anything about the quality of their software asset base or its size, or can quantify the growth of "flux" from year to year. Yet such information can be used to find the funds internally for reengineering and renovating internal processes and the entire systems infrastructure. By benchmarking both processes and products, CIOs can rechannel, redirect and redeploy 25-50 percent of the enterprise's IT investment immediately.

8:50-9:40 am

Downsizing During Rapid Growth



Janet Wilson
Vice President
Information Technology
FirstLine Trust
(Toronto)

Managing a downsized IT environment is especially challenging when an organization is undergoing rapid growth—from about \$1 billion to \$3.6 billion in administered assets in less than three years. This session will explore moving from outsourcing on a midframe to in-house development; why using the right client/server technologies can deliver competitive and cost-cutting advantages; building an IT staff that understands the business; matching IT resources to a constantly changing market; and the importance of in-house R&D.

9:40-10:10 am

Coffee Break

10:10-10:55 am

Capitalizing on Intellectual Assets



Leif Edvinsson
Director of Intellectual
Capital
Skandia Group
(Stockholm)

Invisible assets play a growing role in the development of companies. Intellectual capital, including applied experience, organizational technology, and professional and intercultural skills, exists as both human and structural capital. Increasingly,

people are becoming aware that these hidden, frequently soft assets, can be systematically handled so as to generate visible financial capital. Transforming intellectual capital into a powerful competitive tool requires that intangible assets be identified, cultivated and capitalized upon, with an eye toward future growth. IT is a strategic tool for capturing experiences and organizational processes and then transporting them through a network to business units around the world.

10:55am-12:15 pm

Positioning the CIO as an IT Asset



Moderator:
Marcia Blumenthal
Editor-in-Chief
CIO Magazine



Panelists:
Rod Monahan
Vice President
High Technology
Group Practice
Paul R. Ray & Company



Eugene C. Nees
Vice President
Executive Staffing
The Dun & Bradstreet
Corporation



David J. Robino
Senior Vice President
Human Resources
Nielsen Marketing
Services



Susan Tracy-Wheeler
Managing Partner
Wheeler Associates

What skills, characteristics, experiences and business perspectives do top-executive recruiters, human-resource executives and CEOs seek in top IS professionals? What changes have taken place in the job market? How should IS professionals manage their careers? How important are such hot topics as outsourcing, decentralization, distributed computing and business-process reengineering? How much emphasis is being placed on

technical, personal and business-solving skills? How should IS executives position themselves as a strategic asset in their organizations? This panel will provide perspective on the qualities that businesses consider critical in IT executives today. Using case studies, it will examine the search process, executive assessment, success strategies and myths.

12:15-1:30 pm

Luncheon

1:30-3:00 pm

Concurrent Sessions

A Funny Thing Happened on the Way to Client/Server



Frank Gens
Vice President
IDC/Technology
Investment
Strategies
Corporation

Many organizations are turning to client/server, which promises to deliver low-cost, flexible and easy-to-use business systems while leveraging massive corporate investments in PCs and LANs. But a client/server backlash—born from the frustrating experiences of some early adopters—is quietly starting to build.

Citing the real-life experiences of early adopters, this talk will address key questions for corporations building the next generation of business systems. For what classes of application are today's client/server technologies most appropriate? What are the true costs and paybacks? Who funds development and ongoing support? And how does IS organize to support them?

Asset Reuse: Optimizing Your Capital Investment in Software



Dr. Keith Short
Director of IEF
Research
Laboratory &
Research Director
JMA Information
Engineering Ltd.
Texas Instruments

The reuse of software assets promises the combination of improved quality, lower costs and increased productivity of IS people involved in system development. Effective delivery of this vision requires that methodologies for business-process engineering be exploited in an integrated way. Software assets recovered from existing systems can be combined with new components identified by Information Engineering to construct systems for newly reengineered business processes.

Redistributing Workload through the Enterprise



Leon Williams
Vice President
Worldwide Field
Operations &
Information
Resources &
Vice President
SunIntegration
Sun Microsystems

Within the next 18-24 months, Sun Microsystems plans to have its own computing requirements run exclusively on its line of client/server products. The company has an architectural plan and a strategy to redistribute many of its applications throughout the enterprise. Executives are concerned about reengineering processes and choosing platforms that will provide the best business results. Sun has reduced its own build-and-bill cycle by 100 days in the last three years, generating an additional \$700 million. This session will review Sun's systems-design and -delivery issues, business challenge, business-process architecture, and projects and tools the company employs as a successful Unix system manufacturer.

The '90s: A New Era for Business



Doug Michels
Executive
Vice President &
Co-Founder
SCO

The increasing competition, accelerating change, pervasive consumerism and massive market shifts of the '90s are bringing about a new era for business. And a new business model is emerging that emphasizes consumer needs, flexible organizations, competitiveness, alliances and information as the strategic weapons. IS decision makers are challenged to be flexible, meet varied user requirements, preserve investments in legacy systems and rely on multiple vendors. Open systems and standard components are the key elements of new-era computing strategies.

Ten Key Ways to Leverage Your People



Patricia Chrystycz
Director Network
Management
Systems Marketing
Racal-Datcom



Robert Decker
Vice President
Network
Management
Systems
Racal-Datcom

Most IS professionals are familiar with optimizing service levels using computer and network-management systems. But how many are aware that these systems can also be used to optimize their human assets? With personnel expenditures accounting for an average of 28 percent of IT budgets, and with the cost of dependable, technically-capable employees continuing to increase despite high unemployment levels, seeking ways to leverage the human component of the IS budget is more critical than ever. This session will examine 10 key ways to leverage the people component of the IT equation.

IT: The Human Resource Challenge



David J. Robino
Senior Vice
President,
Human Resources
Nielsen Marketing
Services

Successful technology companies are those that satisfy customers and deliver value beyond measure. The primary driver of customer satisfaction is employee satisfaction. Strategic human-resource management is the backbone of employee satisfaction and helps companies produce products better, faster and less expensively. The IS challenge of the '90s is to develop an innovative human-resource plan that focuses resources on activities that produce value for the client. Such a plan helps companies develop competitive leadership in technology and customer service.

The Cornerstone of the New Enterprise Windows NT



David Thacher
Group Product
Manager, Corporate
& Network Systems
Business Unit
Microsoft
Corporation

The new imperative of IS is to make the full range of today's information systems coherent on an enterprise scale. The cornerstone of this evolution is the operating system. With more than 12 million copies in use and growing, Microsoft Windows has been effectively established as the strategic operating system, scalable within and across architectures and extensible to new technologies. Microsoft Windows NT operating system combines ease-of-use and broad application support of the Microsoft Windows operating system and the advanced capabilities of a new high-end

operating system, supporting MS-DOS, Windows and 32-bit Windows-based applications, as well as OS/2-character-based and POSIX-compliant applications. The Windows strategy can address client-server computing in a way no other operating system or hybrid combination can.

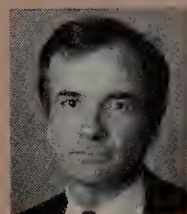
Managing People, Products, Ideas & Property through Workgroup Process Systems



Gene Cort
Vice President
Information Systems
& Support
Lotus Development
Corporation

The architecture of the '90s must integrate structured data from mainframe, mini and PC-based transaction systems, store it in "data warehouses" and deliver it to the managers' desktops. Lotus' IS department has developed a state-of-the-art management information system that gets IS out of the report-writing business and keeps Lotus executives informed.

A Methodology for Setting Breakthrough Objectives



Stephen Hamilton
Strategic Consulting
Organization
Computer Systems
Organization
Hewlett-Packard

As a CIO, you are under increasing pressure to demonstrate how your IT investments affect your company's business results. This session will provide a methodology to directly link IT investments to the achievement of breakthrough objectives. Case studies will be used to illustrate the effectiveness of this approach and the role of IT as a catalyst.

Total Data Quality Management (TDQM): Zero Defects Data Capture



Ann Marie McGee
Director
Strategic Marketing
Fujitsu Personal
Systems, Inc.

Pen technology presents a real opportunity for field-data capture systems that can improve data quality and change the way a company does business. Many potential users of pen-based systems have installed pilot projects for field-data capture, yet have either failed to connect or lacked the tools to improve data quality at the point of origin—data entry by the end user. Systems for field-data capture typically require the deployment of large numbers of units; the total dollar investment can be staggering. Total Data Quality Management (TDQM) provides the tools for determining ROI for the project, measuring data quality and quantifying the impact on corporatewide IS.

Client/Server: IT Evolution & Revolution



Tom Nenninger
Division Vice
President, Technical
Architecture
EDS

While much has been said and written about client/server technology, the real challenge of this IT tool is to help customers make the leap from a transaction-based mind-set to one focused on business event- and knowledge-based solutions. What's evolutionary about client/server is an increased focus on networked distributed processing. What's revolutionary is new technologies and human interfaces. This session will explore how client/server is being used successfully to empower end users and to improve business operations.

Many Choices, Many Channels: The Best Way to Acquire Desktop Technology



Dennis Schneider
Director Marketing,
U.S. Desktop
Business
Digital Equipment
Corporation

Companies acquiring desktop technology in the '90s have more choices than ever before. They also have more reasons to question and rethink current strategies. For example, is the company's IT strategy of the '80s aligned to take it through the '90s? Is the technology it standardized on in the '80s appropriate for the '90s and beyond? Are current buying channels as effective as they could be? A checklist will help IS executives evaluate their organizations' current desktop-technology acquisition strategies.

The Ten Musts in Moving to Unix



Alan Paller
Head of Unix
Strategies,
Computer
Associates

The siren song of Unix-based computing is powerful: eight-to-one advantages in price performance over mainframes; its status as the only "open" operating system; throughput to allow LANs to serve the whole enterprise; and thousands of new applications. Yet the path to Unix is strewn with frustration and failure. This session reviews the 10 biggest challenges IS executives face in making the move and offers advice based on dozens of case studies of large corporations and government agencies.

IT Best Practices: Managing IT In the Future

Paul Kanneman *Principal*
David Howe *Principal*
Booz Allen & Hamilton

Balancing people, property and performance is not an easy task and is becoming increasingly more difficult. As a result of several global benchmarking assignments and the 1992 CEO/CIO Survey, Booz Allen has developed some theories about IT best practices that—applied correctly—can help organizations make the most of all their IT assets. Participants will perform a self assessment so they see where they stand in relation to IT leaders on an array of "best practices." The ways to make best practices work in individual organizations will be identified.

2:15–3:00 pm

Concurrent Sessions Repeated

3:00–3:30 pm

Coffee Break

3:30–5:30 pm

The Era of Human Capital



Professor Robert B. Reich
Kennedy School of
Government
Harvard University

The man Bill Clinton chose to be his economic transition chief says the only way to keep America strong is to invest in the assets that cannot be moved. "In the emerging global economy, the only economic asset relatively immobile is a nation's people—their education and skills, and the communication and transportation systems linking them together." Not just a moral imperative, Reich believes the best means for getting the national economy to grow is to "...shift from 'trickle-down' economics premised on financial capital to 'grassroots' economics based on human capital."

5:30–6:30 pm

Reception with Professor Reich

WEDNESDAY, MARCH 10

7:00–8:00 am

Continental Breakfast

8:00–8:50 am

Marketing, Technology & Change



Regis McKenna
Founder &
Chairman
Regis McKenna Inc.

In today's market, economic, technological and social changes are affected, dramatically and transparently, by the new forces of IT. Most of today's business practices are based on organizational concepts and views of marketing and the customer that were formed in the age of producer-controlled mass production and consumer manipulation. IT has turned the corporation and society inside out, creating both confusion and new perspectives. New technologies are changing the way products and services are designed, produced and delivered, as well as the habits and attitudes of consumers. Given these conditions, the very substance of marketing must change.

8:50–9:40 am

Mining Silver, Molding Bullets, Building Guns & Training Marksmen



Jim Stikeleather
Director of Systems
Development
Kash 'n Karry
Food Stores

Kash 'n Karry Food Stores has been involved in a complete reengineering of its information infrastructure. The goals of this new architecture are to provide a single repository of information; to significantly reduce the need for an IS department; to give employees immediate access to information; to relieve employees

of recurring or procedural decision-making; and to allow them to focus on analysis, planning, creativity and exception-handling. This session will examine the results of the process and will discuss the company's experience with object-oriented, logic and functional programming and an assortment of CASE tools and methodologies.

9:40-10:10 am

Coffee Break

10:10-11:30 am

Good is the Enemy of Best



James M. Eaneman
Vice President
Mission Division
Pacific Gas &
Electric Company

A dynamic environment involves the near Herculean task of building shareholder value while simultaneously raising service quality levels and reducing overhead costs. Success is possible through the application of the leadership trinity, the linkage of an organization's strategy to structure to culture. This approach has been used successfully in organizations ranging from Milliken to Motorola. It is a common sense practice in which managers empower themselves and their people, benefit from everyone's full creative excellence, and achieve world class results. Eaneman's philosophy of "good is the enemy of best and best is the enemy of better" has been highly successful at several of PGE's major operating units.

11:30-12:00 am

Summary

TUCSON'S

La Paloma

Surrounded by Sonoran desert gardens and natural rock formations twenty-nine hundred feet above sea level, La Paloma is one of the premiere resorts in America. Nestled against the Santa Catalina Mountains, the resort has twelve tennis courts, indoor raquetball, a Nautilus and a personal services center. Jack Nicklaus designed the golf course, which has been named one of the "Top 75 Resort Courses" in the country.



Companion Program

Schedule

Sunday, March 7

7-9 p.m.
Networking reception

Monday, March 8

9-10 a.m.
Companion Breakfast

12:30-1:30 p.m.
Luncheon
with Conference Participants

1:30-5:30 p.m.
Biosphere II

6:45-7:30 p.m.
Reception

7:30-9:30 p.m.
Dinner

Tuesday, March 9

7-8 a.m.
Breakfast with participants

9:30 a.m.-3 p.m.
Arizona Sonora Desert
Museum and Old Town
Artisans

5:30-6:30 p.m.
Reception with Robert Reich

Wednesday, March 10

7-8 a.m.
Breakfast with participants

Join old friends and make new ones at an informal Monday morning breakfast for companions. Monday afternoon we will tour Biosphere II, where eight scientists have been sealed into a miniature Earth for two years. The air, food and water are sustained by seven ecological systems, including a tropical rain forest, desert, savannah and 35-foot deep ocean. "Biospherians" produce their own food in an intensive agricultural biome; they are working to better understand Earth and provide a scientific tool to work with basic ecology.

Tuesday, companions will spend the day visiting the Arizona Sonora Desert Museum and Old Town Artisans. The desert museum, located in the midst of Saguaro National Monument West, contains an internationally acclaimed zoo, botanical garden and aquarium with wildlife and plant exhibits. Over 200 creatures of the desert are showcased in the museum's open setting of desert gardens and oasis-like aviaries. In the afternoon, we'll go to the "Barrio Presidio" district, a neighborhood once situated within the walls of the Spanish Conquistadors' fortress. The historical Old Town Artisans building houses works by local artists and the arts and crafts of the Southwestern Indian tribes.



Corporate Hosts

BOOZ ALLEN & HAMILTON

Booz Allen & Hamilton is a global management and technology consulting firm dedicated to helping senior executives improve the performance of their institutions. Following the firm's Strategy-Driven Systems approach, Booz Allen

professionals combine top-down management perspective with hands-on systems integration expertise to plan, develop and implement systems that change the way clients do business.



Computer Associates International is the leading independent software company in the world. CA develops, markets and supports integrated systems management, information and business applica-

tions software for a broad range of mainframe, midrange and desktop computers. CA serves the international marketplace through offices in 26 countries.



Digital Direct is the leading worldwide supplier of networked computer systems, software, and services. Digital pioneered and leads the industry in interactive, distributed and multivendor computing. An international company, Digital does more than half its business outside the United States, developing and manufacturing products and providing customer services in the Americas, Europe, Asia, and the

Pacific Rim. Digital offers a full range of desktop, client/server, production, and mainframe systems for multivendor computing environments. Applications include transaction processing, data management, telecommunications, finance, realtime data acquisition and control, vector processing, education, publishing, manufacturing, software development, and health care.



TAKE ADVANTAGE OF CHANGESM

EDS is a leader in applying information technology to the needs of businesses and governments worldwide. Dallas-based EDS has spent 30 years helping customers achieve their business objectives. The company provides the following services:

consulting, systems development, systems integration, systems management and process management. With operations in 30 countries, EDS has more than 70,000 employees. The company posted 1991 revenues of \$7.1 billion.



Fujitsu Personal Systems is a leader in providing solutions for field automation applications through the development of super portable palmtop, pen-based and communicating computers. Its solutions are designed to meet the needs of applications where light-weight, small form

factor and low power consumption are key. The Santa Clara, California-based company, a wholly owned subsidiary of Fujitsu, Ltd, one of the industry's leading high-technology giants, is a pioneer in the mobile and pen-based computing arena.



Hewlett-Packard Company is an international manufacturer of measurement and computation products and systems recognized for excellence in quality and support. The company's products and

services are used in industry, business, engineering, science, medicine and education in approximately 100 countries. HP has 89,000 employees and had revenues of \$14.5 billion in its 1991 fiscal year.

Lotus®

Lotus Development Corporation, founded in 1982, provides software applications and services that meet the evolving technology and business needs of individuals, work-groups and entire organizations. During the 1980s, Lotus built its success by delivering innovative productivity tools to individuals using

personal computers. With the introduction of Lotus Notes, a group collaboration software for networked PCs, the company is delivering applications in an open workgroup environment and addressing the primary imperatives for computing in the 1990s—networking and organizational computing.

Microsoft®

Founded in 1975, **Microsoft** is the worldwide leader in software for personal computers. The company designs, develops, markets and supports a wide range of personal computer systems, applications, development tools and languages, hardware peripherals, books and multimedia applications for business and personal

use. Microsoft products are available for all popular microcomputers including IBM®, Apple®, and IBM-compatible computers, each designed with the mission of making it easier and more enjoyable for people to take advantage of the full power of personal computing every day.

Nielsen

Nielsen Marketing Research (NMR) is the world's leading marketing information services company, with offices in 28 countries. NMR is dedicated to providing customers with the highest quality information and decision support services using AI-based software, visual programming environments, EIS and ad hoc

analysis and delivery systems. From its world headquarters in Northbrook, Illinois, Nielsen supplies a wide range of services and technologies that help consumer-goods manufacturers and retailers develop insights to make better business decisions.

Racal-Datcom™

Racal-Datcom, a global union of 15 companies in 10 countries, is one of the world's leading independent providers of data communications products, systems and services. It is committed to supplying a broad range of integrated data communications technology and professional

services capabilities that positively impact its customers' business goals. Racal-Datcom is supported by its U.K.-based parent company, Racal Electronics Plc., a more than \$2.5 billion multinational firm, which owns in excess of 100 principal electronics companies worldwide.



SCO is the world's leading supplier of hardware-vendor-independent open systems software environments for business on industry standard computers. A privately held company founded in 1979,

SCO ended fiscal 1991 with revenues of over \$136 million. SCO has over 1150 employees worldwide, with 13 offices in North America and 12 offices throughout Europe, Asia and Latin America.



Sun Microsystems, Inc., is an integrated portfolio of businesses that supply distributed computing technologies, products and services. Its innovative, open client-server computing solutions include networked workstations and multiprocessing servers, operating system software, silicon designs and other value-added technologies. Sun™ systems are used for many demanding commercial

and technical applications. According to analysts, Sun's products command the largest share of one of the computer industry's fastest-growing market segments: workstations and servers. The Sun Microsystems, Inc. operating companies are Sun Microsystems Computer Corporation, SunExpress, Sun Microsystems Laboratories, SunSoft and Sun Technology Enterprises.



Technology Investment Strategies Corporation helps corporate executives and managers around the world make their strategic business decisions about information technology. As a subsidiary of International Data Group (IDG), the world's leading provider of information on IT, TISC is well connected to the largest

global network of information resources. TISC draws from this vast information network, spanning 49 countries, to provide its clients with a comprehensive set of research and consulting services dealing with the most critical information technology management issues of the day.



Texas Instruments Incorporated, the I-CASE technology leader, is a high-technology company with sales and manufacturing operations in more than 30 countries. TI develops, manufactures and markets semiconductors, defense electronics systems, software productivity tools, computer systems and peripheral

products, custom engineering and manufacturing services, electrical controls, metallurgical materials and consumer electronics products. At Texas Instruments, technological leadership and persistent commitment to quality have been the keys to success.

CIO Perspectivessm

IT Assets: Balancing People, Property & Performance

Westin La Paloma, Tucson, Arizona • Sunday, March 7 through Wednesday, March 10, 1993

Please complete this form in its entirety. Thank you.

Last name _____ First name _____

Title _____

Company _____

Address _____ Mail stop _____

City _____ State _____ Zip code _____

() ()

Phone _____ Fax _____

What is your industry? _____

Your name as you want it to appear on your badge _____

Name of companion (if attending) _____

Additional Company Enrollment

The following people from my company also plan to attend:

Last name _____ First name _____

Title _____ Mail stop _____

() ()

Phone _____ Fax _____

Name of companion (if attending) _____

HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Westin La Paloma. We urge you to make your reservations early by calling the hotel at 800-876-3683. Be sure to identify yourself as part of the CIO conference to receive the conference rate. Hotel reservations/cancellations and charges are your responsibility, except for government/military participants.

ATTIRE

Casual! Please, no suits, ties or business attire!

TRANSPORTATION

American Airlines is the official conference carrier. Call American at 800-433-1790 and reference Star File #S1833D4. AVIS is the official car rental provider. Call AVIS at 800-331-1212 and reference B766657. Shuttle bus transportation is available from Tucson airport.

CANCELLATION

You may cancel your enrollment up to 2-26-93 without penalty. No refund or credit will be given for cancellations received on or after 2-27-93. You may send a substitute in your place.

PAYMENT INFORMATION

☐ Check enclosed ☐ Bill company
☐ P.O.# _____
☐ Credit card ☐ AMEX ☐ VISA ☐ MC

Card # _____

Expiration date _____

Signature _____

FAX, CALL OR MAIL

Fax 508-872-0618 • Call 800-366-0246

Attn: Elizabeth Ladendecker

Or mail form to: CIO Magazine

492 Old Connecticut Path

Framingham, MA 01701

ENROLLMENT FEES

Please include your business card.

• Prior to January 15, 1993

IS Practitioners/Executives: If you are a CIO, IS executive or hold another executive position, the fee is **\$1,095**

Government/Military: The fee, which includes your hotel for three nights, is **\$1,495**

• On/after January 16, 1993

IS Practitioners/Executives: If you are a CIO, IS executive or hold another executive position, the fee is **\$1,195**

Government/Military: The fee, which includes your hotel for three nights, is **\$1,595**

• **Sales/Marketing/Consulting:** If you are in a sales, marketing or consulting position, the enrollment fee is **\$5,000**

All enrollment fees must be paid in advance of the meeting. Fee includes conference sessions, concurrent sessions, corporate host displays, conference materials and scheduled food and beverage. Transportation and hotel are your responsibility.

COMPANION PROGRAM

Companions must be enrolled in this program to attend any conference-related functions. Includes all scheduled food and beverage functions, a tour of Biosphere II, a trip to the Arizona Sonora Desert Museum and a visit to Old Town Artisans. Conference session attendance not included. **\$ 275**

OTHER ACTIVITIES

Monday afternoon activities include:

☐ Golf Tournament **\$ 126**
☐ Tennis Tournament **\$ 74**
☐ Biosphere II **\$ 48**



The basic one-year
subscription rate for
CIO magazine is \$94.

Subscribe And Save.

~~\$94~~* **\$59**

Yes, enter my one-year subscription to *CIO* magazine
and bill me later for only \$59, a savings of over 37% off
the basic rate.

Name

Title

Company

Address

City

State

Zip

**This is a domestic rate only (Canada & US). The foreign rate is \$175 US.*

JJ93

**PROCESS
IMMEDIATELY**



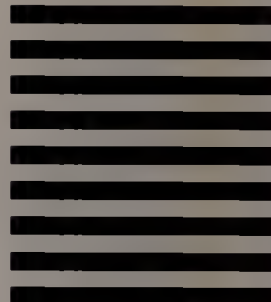
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

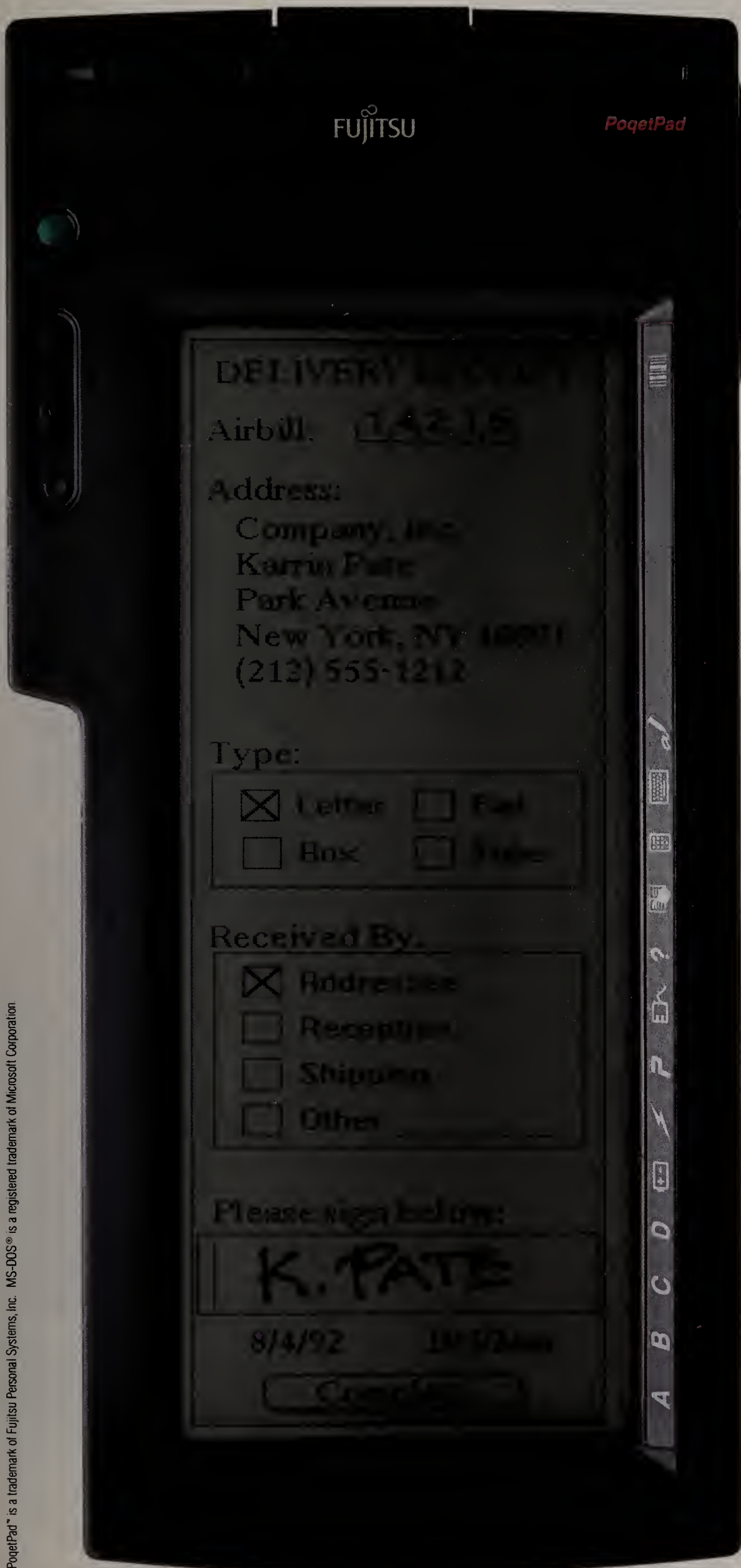
FIRST CLASS MAIL PERMIT NO. 1020 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

CIO Magazine
Attn: Circulation Department
P.O. Box 9208
Framingham, MA 01701-9900



ACTUAL SIZE



PoqetPad™ is a trademark of Fujitsu Personal Systems, Inc. MS-DOS® is a registered trademark of Microsoft Corporation.

ACTUAL SIZE

WE TOOK THE LEAD OUT OF PENCIL PUSHING.



Our experience in field automation has taught us an invaluable lesson. Even the most "portable" of computers can become heavy-handed after a day in the field.

Introducing the PoqetPad™ from Fujitsu. At just 1.2 pounds (less than half the weight of the competition) it's the smallest and lightest pen-based computer for data collection in the field today.

But when it comes to superior technology, it's no lightweight. It's powered on just two AA batteries. Its exclusive Power Management Technology gives an extended battery life of up to 48 hours. And MS-DOS® compatibility puts the immediate benefits of customized software in the palm of your hand.

And because you can easily download to a host computer, it takes the lead out of endless paper-shuffling, too. Dramatically improving the accuracy of your data management. Contact Fujitsu Personal Systems, Inc., 1-800-831-3183, or fax (33) 92-94-58-99 for international inquiries about the new PoqetPad. It's another innovation from the world's second largest computer maker. And well worth the weight.

FUJITSU

COMPUTERS, COMMUNICATIONS,
MICROELECTRONICS



**NEW YORK CITY TRANSIT
AUTHORITY**

The Engine of Change

WITH A CRUMBLING physical and administrative infrastructure greatly impeding its services, the NYC Transit Authority looked to a new materials-management system to put it back on track

BY MEGAN SANTOSUS



THERE WAS A time when materials-management was so inadequate at the New York City Transit Authority that almost any systems project couldn't help but pay off. "When I sized up the situation I told my boss that I could throw a rock over my shoulder and make money wherever it landed," said Charles R. Broshous, the senior vice president of operations support at the public transportation agency.

However, senior management needed more than testimonials to determine if TALON (for Transit Authority Logistics Operations Network) would be worth the initial projected investment of \$13.9 million. The project was intended to improve the materials-logistics process by integrating and enhancing the purchasing, distribution and commodities-management systems already in place. At the time, the TA's president was particularly concerned about ROIT due to an unrelated personnel and payroll system whose costs had spiralled out of control. With mu-

nicipal budgets tight, the tangible benefits of IT projects had to be documented up front.

TALON was designed to address inefficiencies that began when maintenance budgets were sliced in the '70s. The physical and administrative infrastructures responsible for operating thousands of trains and buses crumbled. By the early '80s, entire fleets were idle due to maintenance problems brought on by a lack of spare parts.

Funds were finally allotted when the transit system was on the verge of collapse. However, handing money over without updating the paper-based purchasing and inventory systems proved costly. "When the money came through, it was like the spigot got turned on full blast," Broshous said. "Parts, tools and equipment started arriving in a veritable flood."

The stock-management system couldn't handle the influx. Clerks kept track of inventory on so-called travel cards (the cards traveled between the materials-management staff and purchasing agents who manually entered information on them). Disorganization plagued warehouses and maintenance facilities as people lost track of parts. In-

ventory ballooned to \$325 million while warehouses reported a lack of materials. On the very day Broshous was appointed to help resolve the situation, he found a stack of travel cards accidentally left in the washroom.

BROSHOUS AND fellow "activist" Vice President of Materiel George A. Carrano toured major airlines to observe efficient materials-management systems. Three system purposes were identified: to support distribution functions and enable accurate management of inventory assets, to reduce purchasing lead times by converting from batch to interactive processing, and to provide commodity man-

THE BOTTOM LINE

GROSS RETURN

Direct savings

- Reduction in budgeted head count: average \$2.26 M annually

Indirect savings

- One-time inventory purchase cost avoidance: \$35 M

First-year total ROI: \$37.26 M

**Subsequent total annual ROI (average):
\$2.26M**

COSTS

- Acquisition of hardware and software; systems integration and training: \$15 M one-time cost
- Maintenance costs: \$40,000 annually

First-year total costs: \$15.04 M

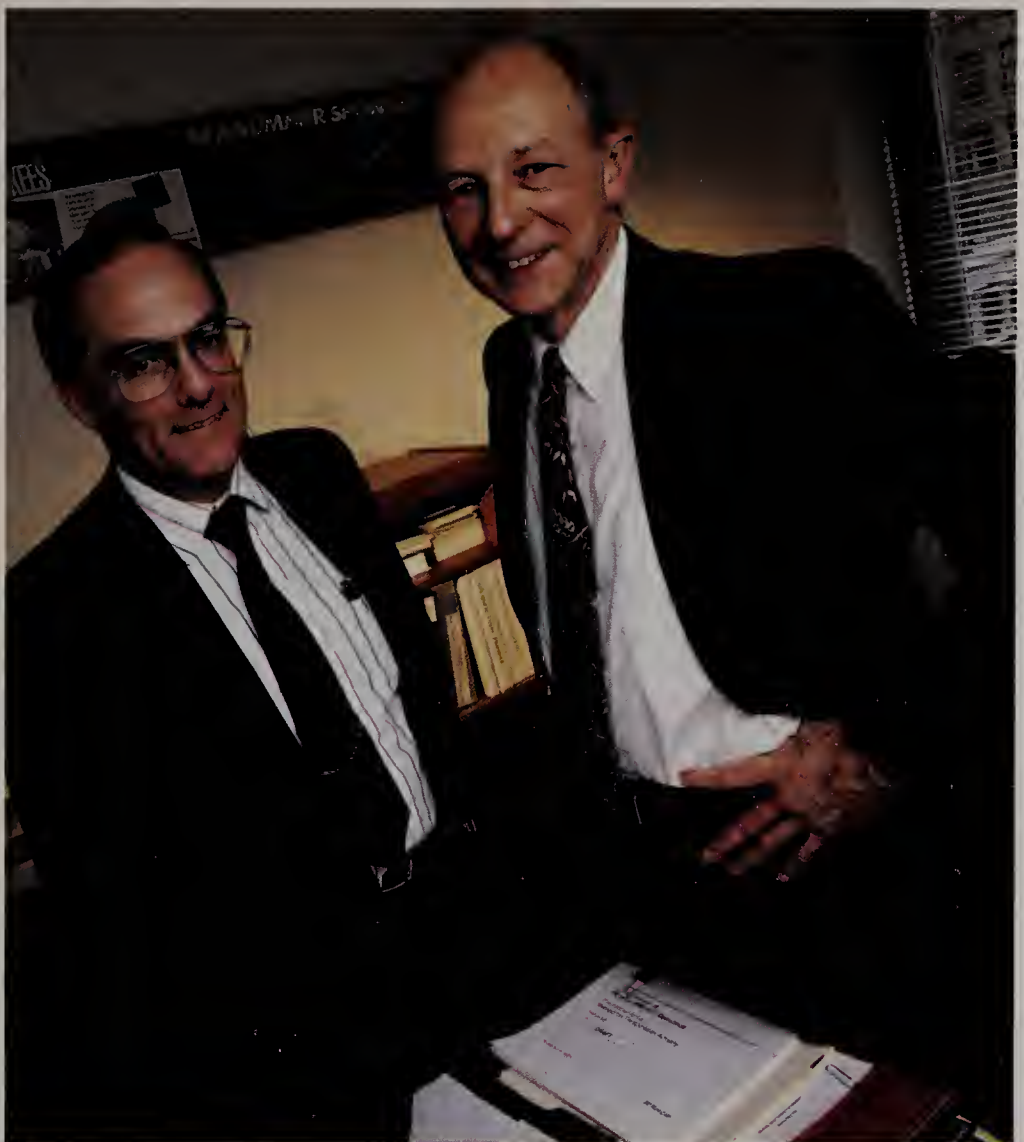
Subsequent total annual costs: \$40,000

First-year net ROI: \$22.22 M

**Subsequent net annual ROI (average):
\$2.22 M**

agement with the ability to analyze materials requirements and manage inventory.

The Transit Authority had an IBM 3090 for inventory and procurement processing and a Wang VS for analytical management. "The goal of TALON was to build an integrated whole and network the various fragmented applications," Carrano said.



CHARLES R. BROSHOUS (LEFT) AND WILLIAM A. HEUSER, JR CONCENTRATED ON QUANTIFIABLE BENEFITS SUCH AS HEAD-COUNT AND CASH-OUTLAY REDUCTIONS.

Before TALON, the TA had no established method for determining ROIT. Broshous, Carrano and Vice President of the Information Services division William A. Heuser, who was hired once deficiencies in the existing dual-system environment were identified, concentrated on delivering quantifiable benefits such as head-count and cash-outlay reductions. While TALON ended up costing \$15.2 million, its returns have also been greater than expected. The project has realized at least \$46.3 million in savings (\$18.9 million more than originally forecasted) and reaped a five-year net benefit through 1991 of \$31.1 million. By 1996, the 10-year net benefit is projected to total \$70.4 million.

The ROIT process included submitting a New Information Systems Initiative document to the IS division for assessment. The document outlined the project's purpose, goals, schedule, staff, costs and benefits. IS took into account the reasonableness of the five-year costs and gave particular weight to the bankability of the benefits. Once the costs and benefits were accepted, other cal-

"We try to measure the quantifiable benefits, but if a project has attractive soft benefits, we may end up being lenient in the ROI requirements."

—WILLIAM A. HEUSER

culations were considered, including the break-even point in months and the internal rate of return. The proposal was then submitted to an executive committee for approval, and the funds were budgeted.

The basic ROIT method used for TALON is now used for other IS projects, although the criteria may vary depending on the project. "In the assessment of the projects, we try to measure the quantifiable bene-

casts into ordering cycles, with procurements phased in for the entire cycle of the maintenance program. The discrepancy between the computer inventory and the actual physical inventory is less than 1 percent, compared to 14 percent before TALON.

Because of improved maintenance, the mean distance traveled between failures of a train is now around 60,000 miles, up from an abysmal 7,000 miles in 1982.

TECHNICAL PROFILE

OLD SYSTEM:

Fragmented applications running on an IBM 3090 and a Wang VS with a paper-based purchasing and materials-management system

NEW SYSTEM:

Software: Developed in-house by a staff of 40, plus consultants

Architecture: An SNA network connecting dumb terminals and mainframes; commodities-management system operates on an X.25 network

Hardware: An IBM 3090 and a Wang VS already in place; IBM dumb terminals; printers from Printronix

fits," said Heuser. "[But] if a project has attractive soft benefits, we may end up being lenient in the ROI requirements."

TALON'S THREE components were completed in August 1991. The purchasing system produces 50,000 purchase orders annually in support of \$100 million worth of parts. The online, real-time distribution system supports 60 warehouses stocked with \$150 million of perpetual inventory. The commodity-management system—"TALON's brain," as Carrano calls it—is used to make forecasts regarding inventory and distribution.

Using TALON, the TA has an accurate picture of quantities and locations of parts. Each piece of material is cataloged according to standardized descriptions that include information on viable substitute parts, obsolescence codes and usage. The 100,000 parts are cross-referenced with manuals and photos.

Now when a part is needed, a maintenance person goes to a storeroom window and usually gets it immediately. If the part isn't available in that particular storeroom, a back order is placed, a search is conducted, and the part is delivered within 24 hours. TALON automatically translates fore-

Of the documented savings, \$11.3 million was the result of reducing quota or budgeted head count. The figure represents the salary and fringe benefits associated with a position calculated over a five-year period. For example, streamlining the data-entry transaction process led to a reduction of 48 distribution positions for a savings of \$5.3 million. TALON provides a planning tool that has decentralized the forecasting of materials needs, resulting in the elimination of 31 positions for a savings of \$3.1 million.

The forecasting component helped the TA reduce inventory and cash outlays for materials for a one-time purchase-order cost avoidance of \$34 million. An additional \$1 million was saved by reducing inventory for repair-related materials.

The TA has also realized significant savings that were not included in the ROIT calculations. With inventory reduced to \$150 million and declining, the TA saves at least \$10 million in leases for storage space. Because of improved maintenance, the mean distance traveled between failures of a train is now around 60,000 miles, up from an abysmal 7,000 miles in 1982.

"These are areas of benefit that haven't been measured," said Heuser. "We don't know how much savings TALON has provided because [maintenance people] have the parts when they need them."

Thanks to the high-profile success of TALON, the IS group is pretty popular at the TA these days. "Senior management judges investments in IS technology just as if it were a brick-and-mortar investment," Broshous said. "The executive committee structure is set up so that senior management makes the call on whether to invest, and the CIO is not the villain." □

"I WANT A NEW PERSPECTIVE ON NETWORKING."

☐ Please send me information on Racal-Datcom's networking capabilities.

☐ Please have a sales person call me.

Name _____

Title _____

Organization _____

My Company Is: ☐ End User ☐ VAR/DLR ☐ Distributor ☐ OEM/SI

Address _____

City _____ State _____ Zip _____

Phone (_____) _____

OR CALL 1-800-RACAL-55

Racal-Datcom™

WE UNDERSTAND NETWORKING INSIDE AND OUT.™ **RACAL**

© 1992 Racal-Datcom, Inc. All rights reserved

2208



No Postage
Necessary If
Mailed In The
United States

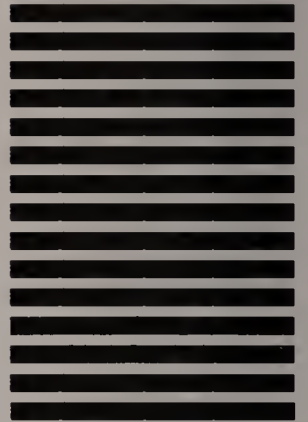
BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 140 BOXBOROUGH, MA

Postage Will Be Paid By Addressee

Racal-Datcom

ATTN: Pre-Sales Support
155 Swanson Road
Boxborough, MA 01719-9980



1-800
RACAL
55

LAN-TO-WAN



NETWORK
MANAGEMENT



LAN-TO-LAN



1-800
RACAL
55

NETWORK
INTEGRATION



NETWORK
OPERATIONS



**Connecting Isolated
Networks, Near Or Far,**

**In A Sea Of Different
Environments,**

**Takes A
Networking Partner**

**With The Broadest
Perspective.**

Racal-Datacom.

If you're looking for an internet-working partner, you may feel stranded. Some vendors are experts in LAN networking. Others have experience with WANs. But only Racal-Datacom offers a full range of products and expertise in both.

At Racal-Datacom, we're experienced in providing both LAN-to-LAN and LAN-to-WAN inter-networking solutions. We can come in, assess your situation and work with you to link isolated LANs or connect your entire enterprise.

Regardless of your computing

environment—distributed, centralized or cooperative—we offer the widest selection of internetworking products, all operating under a single standards-based network management system.

Our comprehensive internetworking solutions work with any computer hardware and can handle all common communications protocols, allowing you to fully integrate all the different parts of your business.

You'll receive ongoing service and support from a networking partner with the breadth of product and

global networking experience you're looking for. A partner who will keep your entire network up and running.

We have a proven track record with thousands of customers worldwide, and we're ready to help you reach your internetworking goals. Simply call 1-800-RACAL-55 for a complete information package.

You'll see why navigating your own internetworking solution has never been easier.



Racal-Datacom™

WE UNDERSTAND NETWORKING INSIDE AND OUT.™

© 1992 Racal-Datacom, Inc. All rights reserved.

RACAL

1-800
RACAL
55

Maybe it's time to look at your phone system objectively.

Maybe the footprint's too big. Maybe the architecture's too fixed. Maybe it's missing some features you need.

Maybe the management module's inadequate. Maybe adds, moves, and changes are a pain. Maybe maintenance is a nightmare.

Face it. That PBX that was state-of-the-art a few years ago could be on the verge of extinction today.

But what can you do? You can't put in a new PBX on a whim. It's too much stress on your people—and your capital budget.

**INTELLIPATH II® DIGITAL CENTREX
COULD BE YOUR ANSWER.**

Maybe the right PBX is no PBX.

Intellipath II Digital Centrex is a feature-rich telecommunications system for businesses needing 10 to 10,000 lines. Voice Messaging, SMDR, ACD, and many other options can be added to the basic service.

The system is central office-based. That means no footprint at all. It means a constantly evolving open architecture that lets you upgrade to ISDN, or to new features as they come on line. It means maintenance is our problem, not yours—New York Telephone monitors the system 24 hours a day.

Best of all, it's a subscription service—no capital investment required. Responsibility for the system rests in New York Telephone's hands.

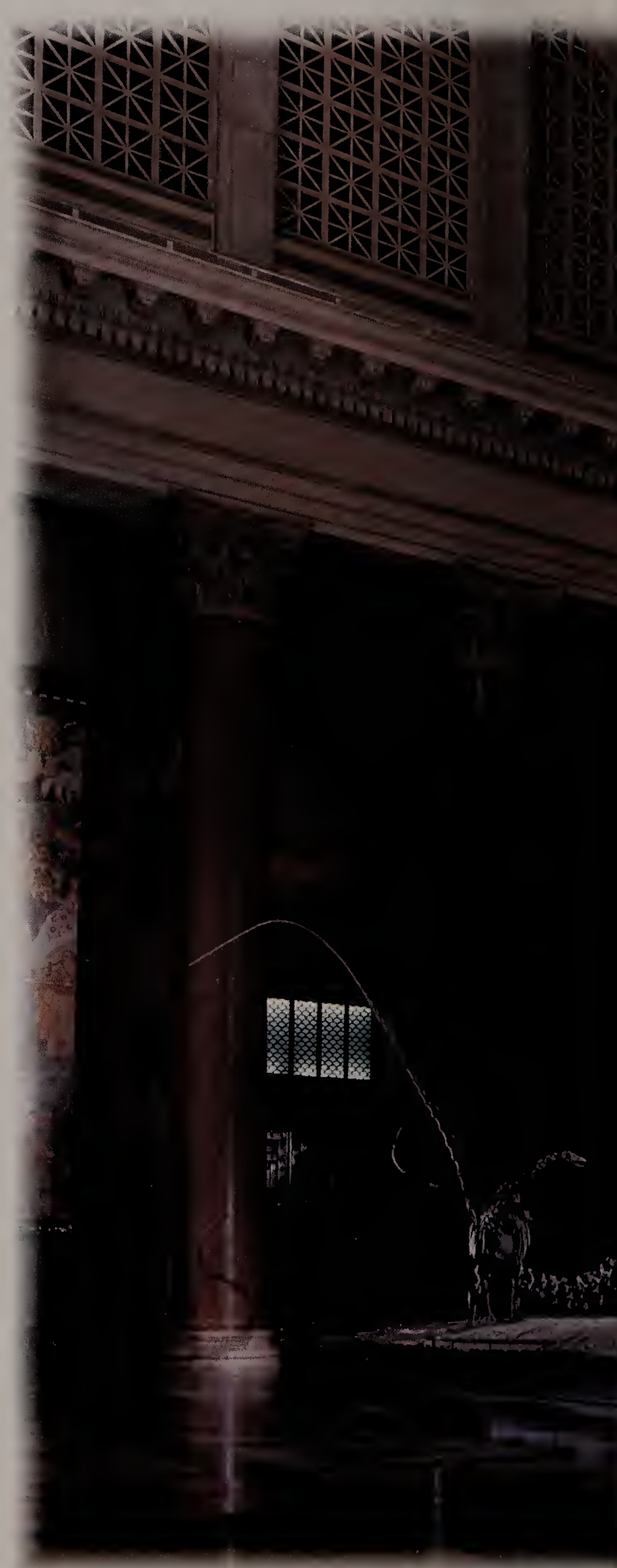
So if your current phone system is approaching fossil status, contact your New York Telephone Account Executive, an Authorized Sales Agent, or call us at 1 800 942-1212, Operator 20 for a detailed brochure.



We're all connected.

New York Telephone

A **NYNEX**® Company







**M E D I C A L C E N T E R
O F D E L A W A R E**

The Road to Recovery



A NEW MATERIALS-MANAGEMENT system provided one medical facility with a much-needed shot in the bottom line

BY RICHARD PASTORE



BUYING EXTRA supplies so you never run out makes sense for household toothpaste and toilet paper. But when a health-care facility is forced to do this with syringes and scalpels, excess inventory can grow to unmanageable proportions, and dollars tied up in the stockpile can balloon

to seven figures.

One such million-dollar monster held sway at the Medical Center of Delaware, bred and fed by an antiquated materials-management system. System limitations made it impossible to accurately track supply use and determine replenishment needs at the private, 1,000-bed, three-hospital medical facility, and this led to excessive stockpiling. Just as bad, the software's inefficiencies let supplies slip through the cracks without billing patients who used them.

Such inefficiency is bad for any business, but in the health-care industry—where skyrocketing costs have incited a national furor—it's reprehensible. With this in mind, a decision to scrap and replace the 10-year-old system would seem like a no-brainer. Yet these same cost pressures prevent IS from acting on instinct alone. "We're being asked

to contain costs, so we don't have the luxury of doing things by intuition," said Donald Rife, director of computer services. "The guy who built the old system went by gut instinct, and he's no longer here." Instead, Rife and user-sponsor Frank Geiger, director of materials distribution (both of whom are based in New Castle), had to make their case by demonstrating solid ROIT.

The Medical Center requires major-project sponsors to follow a standard approval procedure, of which ROI is an integral part. A steering committee of Center executives and a working committee of users and IS staff hammer out what's called a Report of Findings. The report examines several decision factors: anticipated ROI; non-quantified intangible benefits; costs, risks and assumptions; functional requirements; vendor analyses and implementation schedules. The process also mandates a post-implementation ROI audit by either internal or external auditors.

Having a standard ROI procedure to follow benefits IS in two significant ways. First, it's faster. "Developing your own ROI method for each project is inefficient," Rife said. Second, committee-member involvement increases executive and user buy-in—a goal in itself—providing a source of handy allies when a new hospital director challenges system sponsors to justify their

past development decisions.

Unfortunately, a standard procedure doesn't guarantee easy ROIT projections. Costs for the new materials-management system were straightforward—\$250,000 for the software and the networked hardware to run it, plus \$40,000 annually to keep it running. But figuring payback was problematic. Rife and Geiger had a hunch the new system would save on labor costs, but it was impossible to say how much up front.

"The old system was so inadequate there was no good basis on which to calculate expected savings prior to implementation," Rife said. No one could guess how much

THE BOTTOM LINE

GROSS RETURN

Additional revenues

- ▶ Patient-supplies charge capture: \$1 M annually

Direct savings

- ▶ Inventory reduction: \$1 M one-time savings
- ▶ Labor savings: \$250,000 annually

Productivity

- ▶ Savings from processing more purchase orders electronically: \$156,000 annually

Indirect savings

- ▶ Avoidance of office-construction costs: \$240,000 one-time savings
- ▶ Additional staffing avoided in procurement department: \$250,000 annually

First-year total ROI: \$2,896,000

Subsequent total annual ROI: \$1,656,000

COSTS

- ▶ Acquisition of hardware and software; training: \$250,000 one-time cost
- ▶ Maintenance costs: \$35,000 annually
- ▶ Operating costs: \$5,000 annually

First-year total costs: \$290,000

Subsequent total annual costs: \$40,000

First-year net ROI: \$2,606,000

Subsequent net annual ROI: \$1,616,000



FRANK GEIGER DERIVED HARD NUMBERS FROM HIS EXPERIENCE IN INVENTORY REDUCTION.

more effective users would be, because the old system's inefficiencies masked their true potential. Also, since the system would more accurately capture patient charges for supplies used, the sponsors expected to glean new billing revenue. But with no way to estimate how much revenue would be realized, this benefit was relegated to the intangibles list, along with improvement in nurses' goodwill and patient satisfaction.

I T WAS INVENTORY-REDUCTION savings that provided the hard numbers needed for the committee's ROIT calculations. The new materials system would allow the Medical Center to pare down its medical-supply inventory by an estimated \$800,000—freeing those dollars to fund other projects or investments. Geiger arrived at this one-time savings estimate by drawing on his previous experience in inventory reduction plus historical data provided by materials-management software vendors.

One year after implementation, it became clear that inventory savings were just the tip of the ROIT iceberg.

"We didn't want all that money tied up in stuff just sitting there," Geiger said, noting that \$245,000 worth of the stockpile had grown too obsolete to use. Not surprisingly, the Medical Center's board approved the project in December 1990 largely on the basis of the inventory savings.

One year after implementation, it became clear that inventory savings were just the tip of the ROIT iceberg. Auditors discovered that the intangible benefit of better charge capture generated a very tangible \$1 million in new revenue. Supplies that once fell through the cracks were now being billed more consistently to the appropriate patient, thanks to improved system efficiency. The old materials system required clerks to tediously key in codes

annual savings in salaries and benefits. Clerks previously had to manually count supplies at the nurses' stations each day and rekey those tallies into the old system. Now they tote notebook PCs to the stations, enter the usage counts and download the data directly into the new system. The resulting increase in accuracy and efficiency allowed Geiger to cut the process's frequency from seven to three days a week and to eliminate rekeying entirely.

The system also had ROIT ramifications beyond the materials-distribution department. Its EDI capability enabled the procurement office to process 140 percent more purchase orders per year. To achieve this productivity gain using manual methods would have required seven additional clerks—\$250,000 in salary costs avoided. Further, the shift from cumbersome manual processing to EDI trimmed paper and paper-handling costs by \$156,000, based on estimates that EDI procurement transactions cost the Center \$15 per purchase order versus \$35 apiece manually.

TECHNICAL PROFILE

OLD SYSTEM:

A 10-year-old version of Baxter Healthcare's ASAP materials-management software running on Texas Instruments hardware

NEW SYSTEM:

Software: The Medical Center chose Supply Navigator, a materials-management system, and NOVA, an EDI procurement module, from Enterprise Systems Inc.

Architecture: The software runs on a 35-node Novell Netware 386-based local-area network linked with 24 other LANs across a high-speed Ungermann-Bass Ethernet backbone network

Hardware platforms: Hardware newly acquired for this system includes an IBM PS/2 Model 95 server, 35 PS/2 workstations and Panasonic notebook PCs

for each item used and to match them to patient codes. If a patient used up 40 bandage dressings, the codes had to be entered 40 times. With the new system, distribution clerks simply use bar-code readers to scan labels that nurses peel off supply packages and affix to patient charts.

Besides boosting billing accuracy, the system speeds up the charge-capture process. This also contributes to the new revenue, since delayed charges are more likely to go unpaid and uncollected. In addition, a more detailed charge audit trail further discourages patients and medical insurers from challenging a bill's validity.

Labor savings also became quantifiable in the first year of implementation, adding up to over 13,000 hours per year, a \$250,000

SERENDIPITOUS TIMING produced another \$240,000 in indirect cost savings. The Medical Center, already overcrowded with a staff of 5,300 (it is Delaware's third largest employer), needed additional space on-campus for new rehabilitation offices. It faced new-building construction costs of \$50 per square foot. Meanwhile, the materials-distribution system was making it possible to carry far less on-site inventory, freeing 8,000 square feet of warehouse space. The Center took advantage of the opportunity, renovating the warehouse and building 50 offices at \$20 per square foot—a \$240,000 one-time savings.

As for inventory savings, the realized ROIT turned out better than anticipated. The Center is now carrying inventory worth \$460,000, saving nearly \$1 million for better use elsewhere. While this is only a one-time savings, the system's improved inventory tracking will continue to pay dividends for the Medical Center. With a truer handle on supply turnover, Geiger can now negotiate better volume discounts from principal suppliers. This could lead to a just-in-time inventory operation that Geiger estimates could save the Center another \$500,000 annually—a dramatic turnaround for a facility once weighed down with mountains of ace bandages and towers of tongue depressors. 

The
High-performance
RDBMS

Borland's InterBase

Seven reasons to get *the* OLCP edge

1. OLCP vs. OLTP

Borland's InterBase™ is the first high-performance relational database server to satisfy your real-world computing demands. That's the benefit of On-Line Complex Processing (OLCP). InterBase's OLCP accelerates throughput for short, OLTP-type transactions, *and* provides outstanding support for longer, data-intensive analytic transactions using distributed and complex data.

2. Multigenerational architecture

InterBase outperforms all other databases in your real-world applications. Its unique multigenerational architecture results in the fastest response times in mixed read/write situations. And writers aren't locked out by readers.

3. Two-phase commit equals integrity for distributed data

InterBase's unique "peer-to-peer" architecture dramatically improves network performance. Frequently used data can be stored locally, while maintaining access to all data anywhere on the network. And automatic two-phase commit ensures data integrity by protecting distributed data from duplication, loss, and concurrency problems.

4. Multidimensional arrays for high-performance read/write

InterBase's multidimensional arrays store and retrieve data 10 to 40 times faster than traditional rows-and-columns formats. Plus, indexed arrays make it far easier for developers to build and maintain applications.

5. BLOB filters make it easy to use multimedia data

InterBase sets the standard for support of multimedia data or BLOBs™ (Binary Large Objects). Any length and type of data can be stored—text, graphics, sound, video, even raw data from instruments. And special BLOB™ filters let you compress and translate data, making InterBase the *only* database for handling complex data.

6. Easy code generation and maintenance

No one gives you better tools for maintaining data integrity and monitoring critical data. Modular, sequenceable triggers are ideal for enforcing referential integrity and other business rules. Event alerters prompt real-time notification when data changes, while minimizing network traffic and use of system resources. It all adds up to superior database performance.

7. The power of Borland is behind InterBase

Your investment in InterBase is backed by Borland International, Inc., the company that is #1 in relational database technology and #1 in customer satisfaction.



Event Alert!

Don't miss the Borland InterBase seminar coming soon. For more information on InterBase and seminar registration,

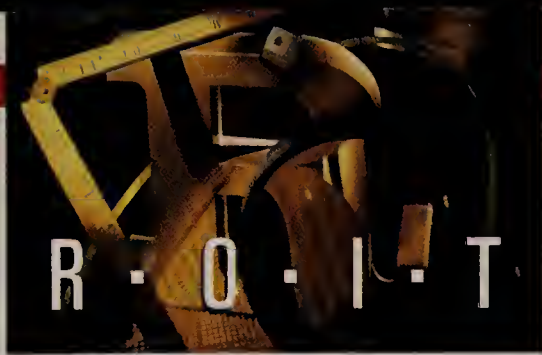
call now!

1-800-245-7367

or call (408) 431-5429

B O R L A N D

The Leader in Object-Oriented Programming



LONE STAR GAS CO.

An IS Energy Audit



**IN THE PROCESS OF IMPROVING SERVICE to customers,
Lone Star Gas streamlined its operations and saved a bundle**

BY MEGHAN O'LEARY



WHEN PEOPLE THINK of excellence in customer service, public utilities do not often spring to mind. Many are inefficient and indifferent to customer needs; this costs them wasted time, opportunity and money. At a time when many utilities are trying to enhance their revenues with

additional services such as appliance rentals and repairs and energy audits, customers who are unhappy with the basics are not a promising market for extras.

In 1988, Lone Star Gas Co., a division of ENSERCH Corp. in Dallas, decided to improve service to its 1.2 million customers by enhancing its customer information system. In addition to holding the service records of all Lone Star customers, the system now plays an important role in the company's day-to-day interactions with them. It provides a single service number for customer calls, routes all calls to one of three customer communication centers regardless of the location of the customer, transmits orders from the communication centers to service centers, automatically schedules service calls, and communicates in real time with terminals in the service vehicles. These

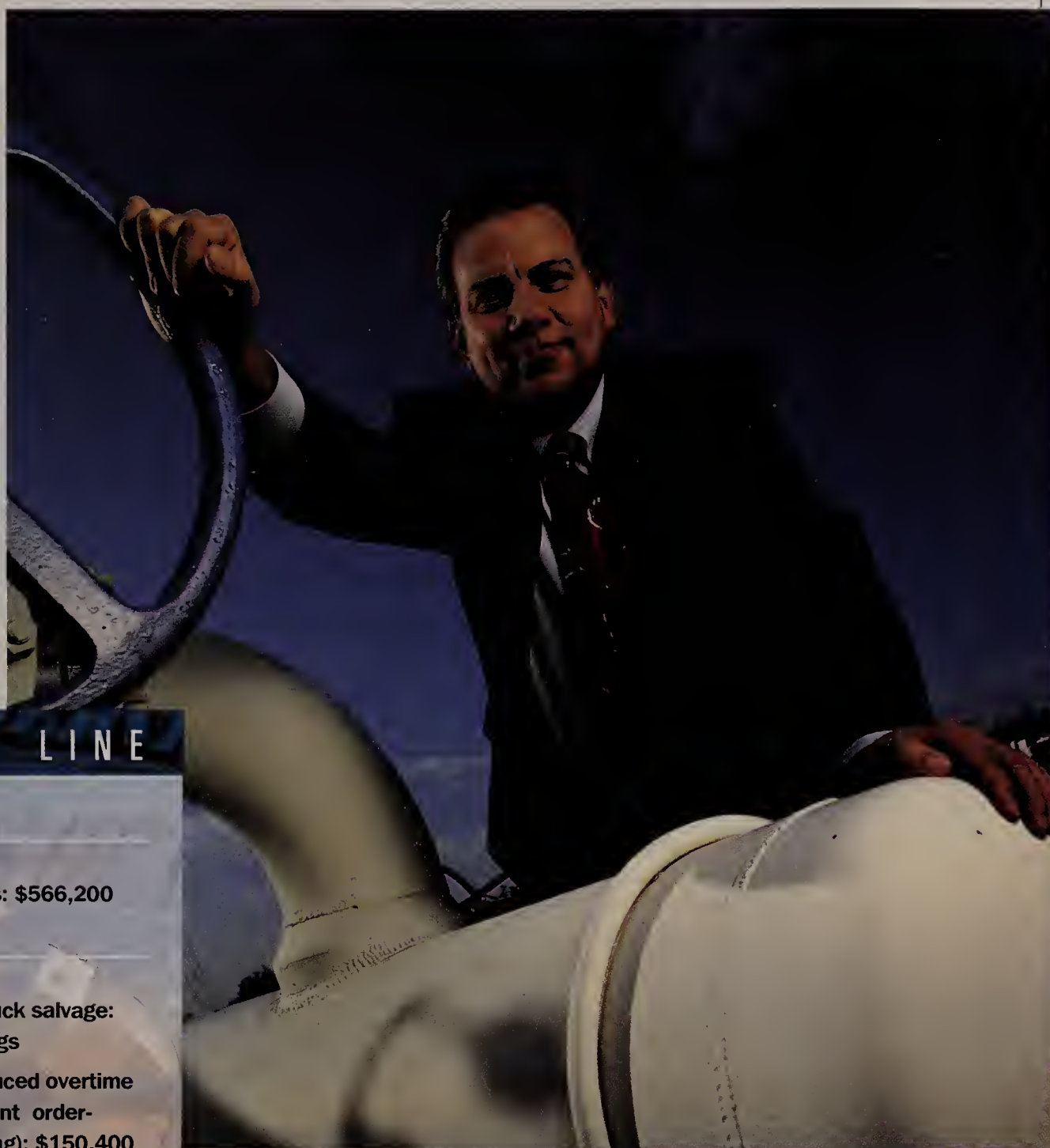
improvements to the system have resulted in a smaller number of service representatives getting more done in less time with fewer callbacks and mistakes, plus some unexpected savings and revenues. In four years, the company's ROI has been close to \$4 million.

It wasn't hard for Lone Star to cost-justify the new system, according to Vice President of Information Systems and Services John Ogrizovich. Until 1988, the company used paper work orders to handle all customer requests. A customer would call a local business office to request a service, and the office would generate a paper work-order request and route it to a service center, usually in a different location.

Every morning, service technicians would pick up a handful of orders, make their own judgments as to how and in what order to handle them and head out for the day. A lack of coordination between the offices and dispatchers at the service centers meant that a technician might arrive at a job site without the needed tools, parts or—in some cases—skills and would have to return on another occasion or turn the call over to another technician. The dispatcher, meanwhile, had no idea who was out on what job or when technicians would call in. In addition, there was no coordination of routes, so two technicians might be driving miles

and miles and covering the same service area.

Ogrizovich worked with Roy L. Roberts, vice president of Lone Star's Dallas division (the biggest user of the customer information system), to come up with cost and ROI estimates for the improvements over a five-year system life. Roberts' staff projected a 15 percent increase in service-staff efficiency based on reduced overtime, an increased number of orders handled by each service person, better route building and



THE BOTTOM LINE

GROSS RETURN

Additional revenues

- ▶ Additional appliance repairs: \$566,200 annually

Direct savings

- ▶ Personnel reduction and truck salvage: \$2,844,000 one-time savings
- ▶ Increased productivity (reduced overtime and drive time; more efficient order-matching and record-keeping): \$150,400 annually

Indirect savings

- ▶ Reduced callbacks for service: \$214,800 annually

First-year total ROI: \$3,775,400

Subsequent total annual ROI: \$931,400

COSTS

- ▶ Acquisition of hardware and software; training: \$1,242,000 one-time cost
- ▶ Maintenance costs: \$45,200 annually
- ▶ Operating costs: \$318,600 annually

First-year total costs: \$1,605,800

Subsequent total annual costs: \$363,800

First-year net ROI: \$2,169,600

Subsequent net annual ROI: \$567,600

JOHN OGRIZOVICH EXCEEDED HIS CONSERVATIVE PROJECTIONS.

scheduling, and improved tracking and dispatching of skilled service people.

The technology investment was something of a risk for Lone Star, which had until this time been a relatively low-tech company, at least in the area of service. The company integrated its online customer information system with its phone system, allowing customer-service reps to retrieve and create account information more quickly. Today, new Unix processors in 40 service centers automatically field service requests from mainframes at the company's three call centers in Dallas, Fort Worth and Waco, which cover about 85 percent of Lone Star's service area. The Unix machines route customer information to the dispatchers, who, with the help of an electronic geographic grid, plot efficient routes for each service technician each day based on ge-

The Unix machines route customer information to the dispatchers, who plot efficient routes for each service technician each day.

PHOTO BY DAN BRYANT

ography, work-order priority and customer availability.

The dispatchers transmit the route information via radio frequency to mobile data terminals in 200 of Lone Star's service vehicles in the Dallas metroplex area, and they can transmit additional information or new orders after the technicians have hit the road. (Lone Star will be upgrading 140 more trucks in the next 15 months.) The

TECHNICAL PROFILE

OLD SYSTEM:

An Amdahl mainframe-based customer information system backed up by a paper-based service-request and dispatch system. An SNA backbone connects 400 IBM 3270 terminals and 400 PCs running 3270 emulation to the mainframe.

NEW SYSTEM:

Software: Communications Software from Mobile Data in Vancouver, MAPSCo Geographic Grid for dispatching and route building.

Hardware: The customer information system runs on the Amdahl mainframe. An AT&T 3B2/500 Unix-based minicomputer communicates field-service orders from the mainframe and transmits them to Wyse WYS350 dispatch terminals via leased lines. The Wyse terminals communicate via radio frequency with Motorola 9031 mobile data terminals in 200 of the company's trucks.

service technicians use the mobile terminals to communicate their work status and location to the dispatcher throughout the day. The total outlay for this system was slightly more than \$1.2 million, with ongoing maintenance costing \$45,200 annually and operating costs for computer usage, phone lines and taxes ringing in at \$318,000 a year.

The direct, hard benefits of the system included a savings of over \$2.8 million based on the elimination of 12 service reps and eight clerical positions. The system has improved Lone Star's productivity by reducing overtime and multiple trips to the same location. It has also allowed Lone Star to realize big savings from small efficiencies. For example, improved routing accounted for an average reduction of a mere .2 miles traveled per service order, but multiplied by hundreds of service people over four years, that has added up to over a quarter of a million dollars. And by transmitting work orders electronically, Lone Star has saved 25 cents, worth of paper per order, amount-

ing to \$67,000 since 1989. Together these productivity gains add up to annual savings of over \$150,000. In indirect cost savings, a 20 percent reduction in callbacks has saved the company \$214,800 a year.

Lone Star realized a few unexpected returns from improving its efficiency as well. It was able to sell seven service trucks, idled by improved efficiency, for a savings of \$17,500. In addition, customers responded to its more reliable, flexible scheduling by boosting appliance-repair revenues—an area that has never been a money-maker for Lone Star—by over half a million dollars a year.

OGRIZOVICH AND ROBERTS seem to prefer the safe tack of using conservative ROI measures. While they agree that the boost in appliance repair indicates that customer relationships have improved as a result of the system, they are reluctant to look to those changes for hard ROI numbers. Nevertheless, the company now receives (and can handle) an additional 50,000 work orders per year and can determine a service technician's arrival time to within two hours. Dispatchers are also better able to track the performance of their service technicians by comparing a set of benchmarked times required to perform services to the repairers' actual times. These measures are used to determine who is in need of further training.

There are benefits the company has not yet had time to quantify. Improved efficiency has resulted in the closing of 10 offices and the elimination of 30 positions over and above the 12 service-rep and eight clerical posts already mentioned. While the project team identified those potential savings at the outset, its cautious approach to ROI kept it from including them in the original estimates, Ogrizovich said.

While Ogrizovich and Roberts determined ROI based on a five-year project life, they expect the system to be paying dividends for much longer than that. Conservative ROI estimates, they believe, while not as compelling at the outset as dramatic numbers, often result in pleasant surprises. "We are conservative up front and have consistently exceeded our projections," Ogrizovich said. "That builds our credibility to the extent that it lessens the demand on a day-to-day basis to justify our actions." □

Informix Database Technology Helps Hyatt Deliver The "Hyatt Touch."



When Hyatt Hotels and Resorts wanted to ensure their famous personal service, they turned to us, Informix, the experts in UNIX® relational database management systems.

Worldwide Reservation System.

Hyatt required a system that would support a large number of concurrent users and provide round-the-clock room information for all of their 160 hotels worldwide. They had to look beyond the existing mainframe for a more flexible, productive open system for future needs.

Hyatt chose Informix's UNIX database solution.

Replacing the Mainframe.

All of Hyatt's needs were easily met, including determining room availability, keeping internal reservations and independent travel agents connected, and automatically transferring room point-of-sale, restaurant activity, client accounts and automatic checkout into a central accounting system.

Hyatt and thousands of other companies have called on us for 12 years to successfully handle their critical data.

If you're considering UNIX for data management, talk to Informix. Because we're the experts.

Call 1-800-688-IFMX.



THE UNIX DATABASE EXPERTS.



TEXAS INSTRUMENTS

Bargaining Power



BY CONSOLIDATING ITS WORLDWIDE purchasing activities in a single system, Texas Instruments got even more than it bargained for

BY MEGHAN O'LEARY



I**N 1984, TEXAS** Instruments was an 800-pound gorilla that didn't know how to throw its weight around. An enormously successful high-tech company with offices, customers and manufacturing operations all over the world, TI nevertheless handled its purchasing at the local and business-unit level. It maintained separate purchasing systems in each of its units and, in many cases, paid retail prices for components, according to Ralph Szygenda, vice president of information systems and services.

In '84, however, upper management identified a strategic opportunity in consolidating those systems into a single, worldwide purchasing mechanism. The single system would provide every business unit with electronic access to purchasing information and price breaks worldwide and let the company leverage its enormous purchasing volumes into discount agreements. With the system only partially rolled out, TI is already projecting cost savings of \$30 million annually based on the returns it is seeing.

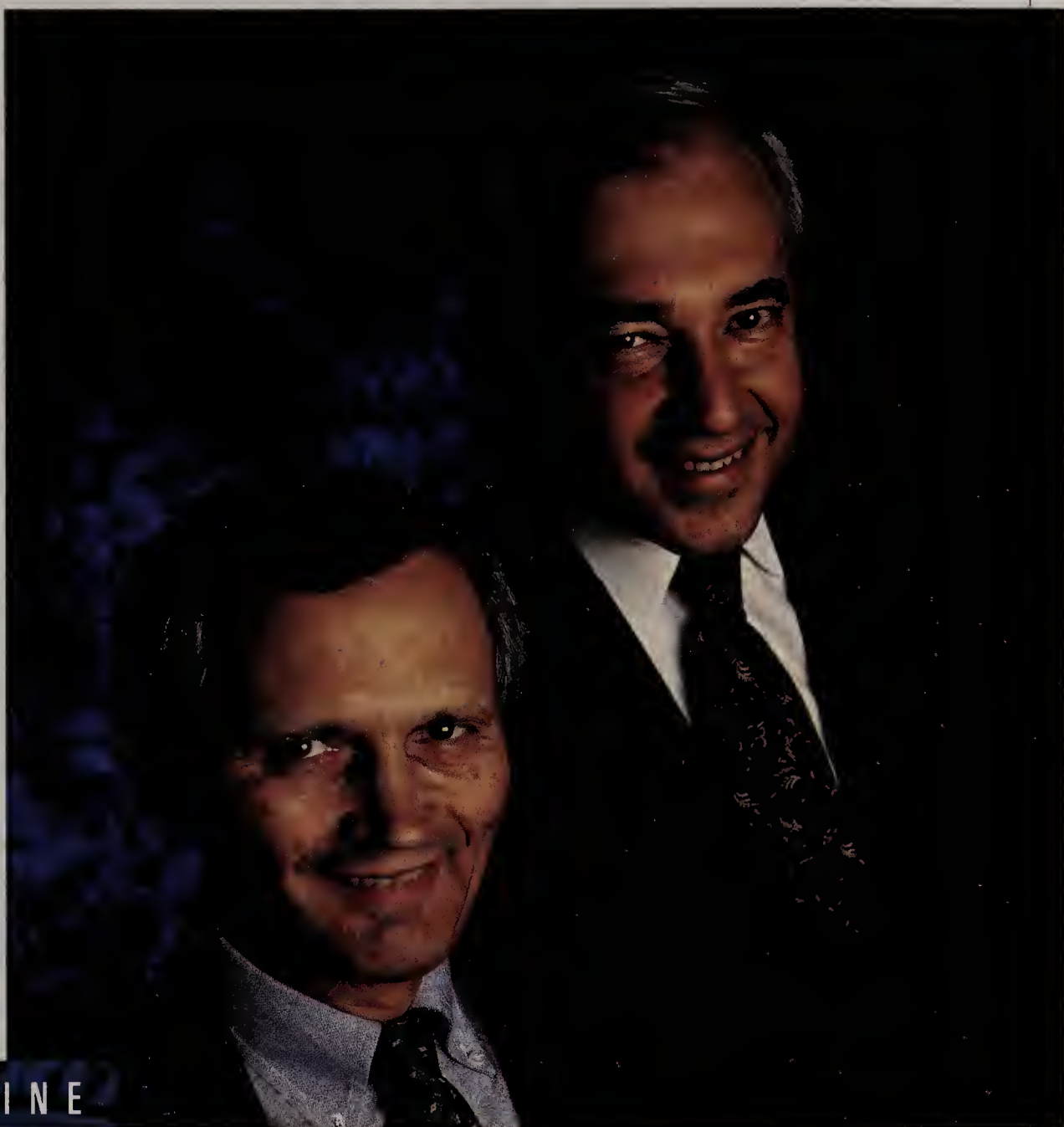
The IS&S department worked with a cross-functional team of procurement managers from the business units to determine ROI measurements and found that even a one percent reduction in TI's materials costs, which ate up 50 percent of its \$6 billion annual revenues, would result in a \$30 million savings. The team identified areas of potential cost savings and cycle-time reduction and worked with IS executives in each business unit to develop a suite of electronic-procurement modules to serve those areas. In particular, they developed a workstation module that gives buyers access to worldwide ordering information and an electronic purchasing system that allows non-buyers to order directly from approved manufacturers and arrange prompt delivery.

The team focused first on reducing the number of its suppliers and striking volume purchasing deals with those remaining. This process required that TI consolidate its many buying databases into a single one accessible to buyers all over the world. With access to worldwide buying information, a buyer can make sure the company is getting the best price and find opportunities for new volume agreements. Since 1984, TI has halved the number of suppliers it uses from 30,000 to 15,000. Negoti-

ating volume agreements with its suppliers has saved the company \$3.2 million in materials costs.

In addition to volume discounts, TI negotiated quality contracts with 1,000 of its largest suppliers. These contracts demand very high manufacturing standards and on-time delivery straight to TI's factories. (Previously all deliveries had to go through the company's quality-control department.) Electronic tracking of supplier performance on these agreements allows the company to measure their success.

AN ELECTRONIC purchasing system lets authorized non-buyers order straight from approved vendors. This improves the accuracy and speed of ordering and reduces the volume of paper the company needs for every order. The buyers now tend to focus on exceptions, finding new op-



THE BOTTOM LINE

GROSS RETURN

- Reduction in materials and labor costs (includes shortened order and product cycle times; more defect-free lots, volume-discount purchases and paperless orders): \$30 M

First-year estimated total ROI (1993): \$30 M

Subsequent total annual ROI: \$30 M

COSTS

- Acquisition of hardware and software; training (over six years starting in 1986): \$20 M
- Maintenance and operating costs: not applicable

First-year total costs: \$20 M

Subsequent total annual costs: \$0

First-year net ROI: \$10 M

Subsequent net annual ROI: \$30 M

DENNIS HISER (LEFT) AND RALPH SZYGENDA TOOK A RISK IN GOING WITH OS/2.

portunities to save money and dealing with vendors who have not made a quality commitment. The system has enabled TI to reduce its buying staff by 30 percent.

With fewer suppliers, TI can more closely analyze delivery rates and quality levels over a period of time. Such tracking and a guaranteed stream of business encourage good supplier performance. Today, 75 percent of deliveries are made on time—compared with 21 percent before the system's implementation. In addition, TI no longer spends a lot of time certifying suppliers' product quality. In 1984, only one percent of supplies shipped could bypass the quality-control department and go straight to manufacturing; today 42 percent do so, contributing greatly to the company's shortened product cycle time. TI is considering creating an electronic catalog for internal users of the system that would speed up the ordering process even more. And the company has realized undisclosed revenues

An electronic purchasing system allows authorized non-buyers to order straight from approved vendors.

from the commercial sale of the system.

Electronic data interchange (EDI), previously a pill that TI had tried unsuccessfully to make its suppliers pay for and swallow, became a necessity. TI's quality partners agreed to do business with the company via EDI and were given electronic entrée into TI's purchasing system in order to submit invoices and set delivery details with factories. TI bought 1,000 PCs to tie

built prototypes of the electronic purchasing system and tried them out on users. With each iteration, users discovered new areas for improvement and return on investment.

AS A HIGH-TECH company, TI is used to striking out ahead of its peers in technological experimentation. Nevertheless, Szygenda and Dennis E. Hiser, TI's director of corporate procurement and transportation, were well aware of the financial risk they took in being among the first users of OS/2, as well as one of the earliest implementers of client/server computing to support real-time buying. But even though working with im-

TECHNICAL PROFILE

OLD SYSTEM:

Mainframe-based purchasing systems at each business unit, simplified EDI

NEW SYSTEM:

Hardware: A client/server environment consisting of mainframes (which still handle communications), EDI and centralized databases; a LAN-based (PS/2s and AST 386s), multitasking buyers' workstation system running under OS/2; and TI's own proprietary PC-based purchasing workstation system.

Software: The systems run a CASE-based suite of procurement tools including single supplier, commodity and agreements databases containing all authorized suppliers and contract information worldwide; menu-driven electronic requisitioning for paperless processing of requisitions; a paperless routing and approval system, and the electronic buyers' module.

quality suppliers into its client/server environment and provided them with EDI software. Today, 65 percent of TI's purchase orders are electronic.

The system supports just-in-time (JIT) ordering by tracking deliveries and usage in real time; this has shortened TI's ordering cycle from 16 days to four. While the company has yet to measure the benefits of such responsiveness on the factory floor, the system allows it to respond to manufacturing problems, large orders and shortages immediately, helping to avoid waste and missed sales. Using EDI and the newly developed purchasing software to place orders and replenish inventories automatically, TI has been able to shorten its product cycle time by 50 percent.

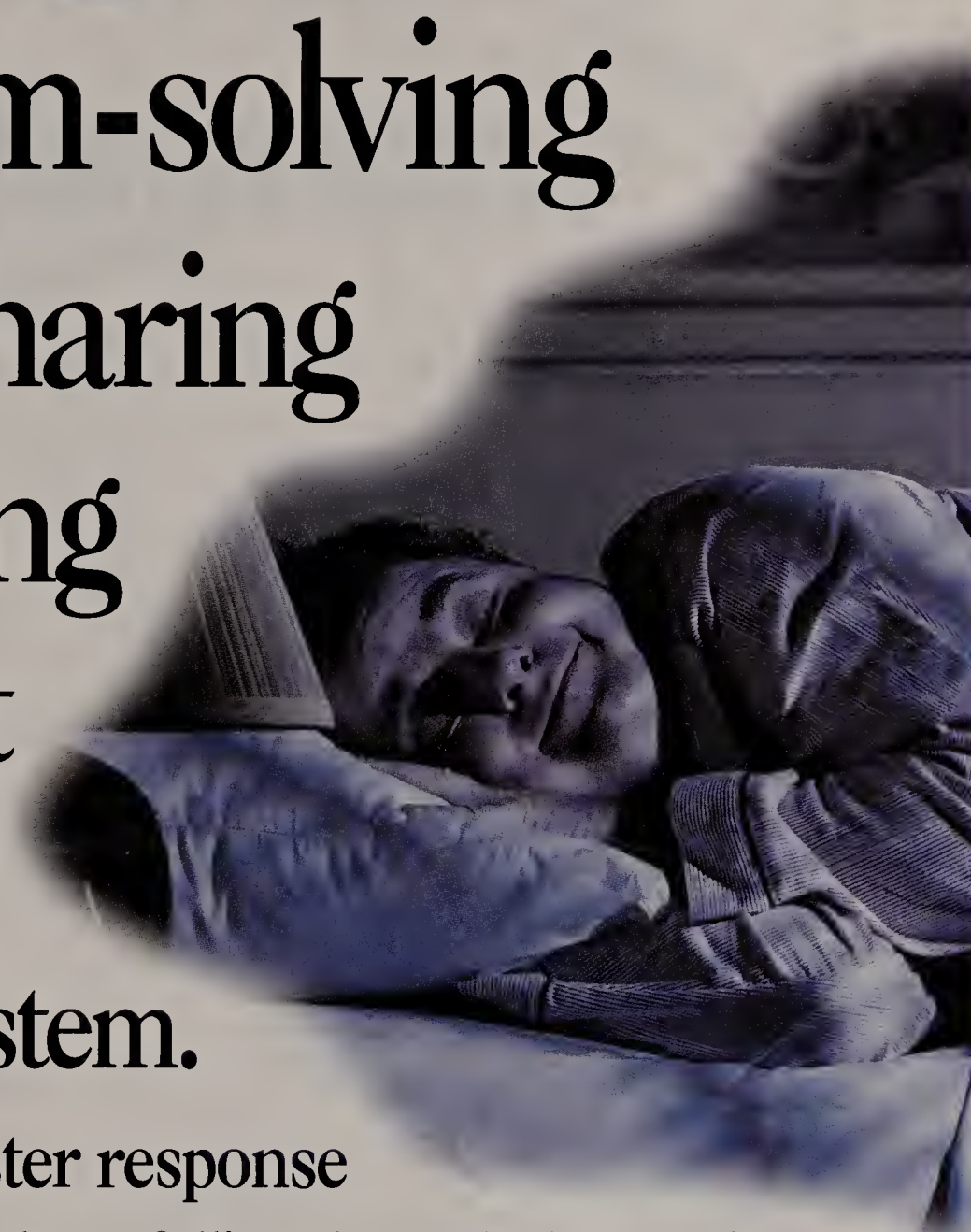
One of the keys to TI's success has been a slow approach. The company spent a year interviewing users in every business unit involved in purchasing about how to improve the process and planning the changes it would make. The IS&S department first

In 1984, only one percent of supplies shipped could bypass the quality-control department and go straight to manufacturing; today 42 percent do so, contributing greatly to the company's shortened product cycle time.

mature technologies has caused TI to exceed its planned development cycle time, Szygenda and Hiser knew that if their conservative ROI estimates panned out, the extra development cost would be offset by the savings. Another goal set by the IS&S department: The efficiencies of the new system would be such that it would incur no additional maintenance and operating costs above what TI was already spending on its existing systems. So far, with the ordering system rollout 80 percent complete and the buyer workstation system rolled out to 40 percent of buyers, the company has achieved that goal.

Over the past six years, TI has spent \$20 million developing this system. Hiser conservatively estimates that it has a life of 10 years. Although TI has yet to measure many of the softer aspects of its success—such as higher worker productivity, improved customer and supplier relationships, increased orders as a result of better manufacturing practices and the savings resulting from carrying less inventory—it estimates that the system will more than pay for itself in its first year of operation. ☐

Introducing Apriori: The problem-solving knowledge-sharing cost-containing call and support management so-you-can-rest system.



So your boss says, "I want faster response to users' calls. And no more problems falling through the cracks. And get your new people up to speed fast. By the way, we've got to tighten our belts again this year. Have a nice weekend." Believe it or not, you can do it all, with Apriori,

the first complete call and problem management system. According to believer

J.C. Penney, Apriori helps solve 95% of problems on the first call. (One support group reached 85% in just four weeks.) And at Interleaf, 40% more calls are being answered.

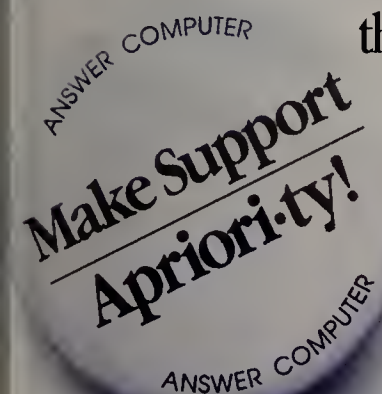
With the same staff. Further, Apriori's "learning" and knowledge-sharing database brings new people up to speed, immediately! So call 1-800-677-2679

to find out how. Now. Then rest easy. And have a nice weekend.

ANSWER
COMPUTER, INC.

Some Apriori users from A to Z: • Answer Computer • Bell Northern Research
• Cadence Design Systems, Inc. • ESRI • General Electric • Motorola • Triad Systems Corp. • Zycad Corp.

© 1992 Answer Computer, Inc. 1263 Oakmead Parkway, Sunnyvale, CA 94086. Apriori is a registered trademark of Answer Computer, Inc. Other company names are trademarks of their respective holders.



Can you be better, faster and cheaper?

EDS helped Del Monte say yes.

Del Monte is changing the way it does business. EDS is helping integration that improves accuracy and speed of decisions, while lowering costs, and giving local management more flexibility. These new systems have provided individual Del Monte plants with more operational control. This has improved their ability to respond to changing business situations. More operational control also means more accurate decisions. Plants now produce raw products faster. Results:

plant packing capacity to better match supply with demand. This flexibility benefits the company, its growers and carriers.

Del Monte also benefits by lowering administrative costs. "Del Monte and EDS aggressively applied better technology to our manufacturing operations," says Ron Peters, Senior Vice President of Operations.

"Local management has more control and accurate information to make decisions. This technology will enable us to achieve long-term financial benefits." With EDS's help, Del Monte successfully completed the largest information technology project we've ever undertaken and did it on time and on budget.

Technology is helping companies. **TAKE ADVANTAGE OF IT.**

Lane, 75230 Or. 904-490-75230 (214) extension 142

All these two

Where do you get faster?

EDS was in the starting blocks for the 1992 Olympic Summer Games.

At the 1992 Olympic Summer Games in Barcelona, official results were communicated in record time. Around the globe, in three and a half billion people. The reason was the Results Information System created by EDS. A system that delivered the fastest, most accurate results in Olympic Games history.

How ambitious was this undertaking? The Results Information System was based on complex, custom-designed client/server technology. The system integrated a wide variety of applications spanning:

Can record growth be sustained without compromising the service that helped to create it?

EDS helped Jackson National Life say yes.

Since 1985, Jackson National Life has grown 750 percent while maintaining one of the lowest cost-to-premium ratios in its industry. They did it thanks in part to information technology from EDS that significantly improved customer service response time and boosted productivity.

EDS developed systems that streamlined administration and workflow, making the company more responsive to customers. And Jackson's VP of technology, Curtis Shankel, says, "New systems now in development will improve productivity 40 percent more. Those systems will allow customers to deal with one employee for all their needs. So we can offer better service faster."

EDS also provides transaction processing, enabling Jackson to avoid large, up-front investments in additional computing capacity. Net: Jackson's productivity has been and will continue to have decreased.

Jackson ranks in the top one percent in winning new business. Integral to the success of the company is the EDS system.

Once you're ahead of the competition, do you have what it takes to keep the lead?

Can you increase revenue without increasing costs?

With EDS, the Indiana Dept. of Transportation answers yes.

The Indiana Department of Transportation increased the output of its engineers 60 percent without increasing the size of its staff. They did it with the help of the powerful EDS Graphic Data System (GDS). This client/server system is also making roads safer and saving taxpayer dollars.

In addition, EDS created the Geographic Information System (GIS) to assist engineers in the design and drafting of new roadways. It's the first system of its kind to combine detailed topographic data and computer graphics all on one screen. Engineers using the system view every road, bridge and

Can you serve customers across as well as you serve them across?

EDS helped the Armed Forces Financial Network answer yes.

The Armed Forces Financial Network provides service personnel with easy access to their finances from virtually any U.S. military base, anywhere in the world. It's done with the help of an information system that EDS and AFEN developed and manage in partnership.

On average, personnel are reassigned to a new base four times, with at least one assignment overseas. Those transferred but to conduct all of their personal financial transactions at their assigned base.

The EDS system links ATMs in dozens of countries located on and near military bases. So when service personnel need to purchase away from home, they have a much easier time getting cash. Additionally, links are being established between the items customers want, when they want them, at the right prices.

Can cities find sources of revenue other than taxes?

EDS helped Chicago answer a definite yes.

Using new applications of information technology, EDS is helping Chicago collect \$420 million in unpaid parking tickets. In less than a year, annual ticket revenues have increased by 50%. Plus, revenue has nearly doubled from parking meter collections.

Because drivers now take parking tickets that they receive more seriously, traffic flow has improved measurably throughout Chicago. According to Chicago officials, the whole program is a victory for the city.

program. Now, hand-held computers are used to record print out tickets. The information is then

Can better technology really translate into better products and better sales?

EDS helped Prince answer a smashing yes.

Using sophisticated Unigraphics technology from EDS, Prince Manufacturing has created the most advanced tennis racket on the market today. It's called the Prince Vortex. And just six months after its introduction, it's already Prince's top-selling racket.

Unigraphics is a computer-aided design and manufacturing system, based on client/server technology that speeds up the design process. With it, Prince can now examine 10 different racket designs in the time it used to take to examine one. And design changes that used to take weeks can now be accomplished in days. As a result, Prince can get its new and better products to market a lot sooner.

Response to the Vortex from consumers and retailers has been overwhelming. And Vortex sales are already 28 percent higher than Prince's next best-selling racket.

"In the highly competitive tennis racket industry, we count on technology to improve the quality of our products," says Steve Davis, Director of Research and Development at Prince. "A significant percentage of the improvements found in our rackets today can be credited to using EDS Unigraphics."

New technology can improve your products while also improving your bottom line. EDS is applying its technology to help you write Peter EDS, 7171 E. M25, Dallas, TX 75240. Call 490-2000. **TAKE ADVANTAGE OF IT.**

organizations have things in common.

Each achieved outstanding results. Each with the help of information technology from EDS.

Jackson National Life grew 750 percent in just six years with the help of systems developed by EDS that streamlined administration and made the company much more responsive to customers.

Chicago improved traffic flow and is collecting \$420 million in unpaid parking tickets with the help of hand-held computers and up-to-date imaging technology. EDS helped develop and implement the systems.

The **Armed Forces Financial Network** provided service personnel access to their finances from virtually any U.S. military base through a global EDS ATM network.

Smith's Food & Drug Centers

expect to double productivity thanks to EDS systems which support all aspects of the retailer's operations.

Prince Manufacturing now makes product design changes in days instead of weeks thanks to the EDS Unigraphics® CAD/CAM system.

The **Indiana Department of Transportation** saved millions of dollars and increased the productivity of engineers 60 percent. EDS's client/server-based Graphic Data System was the key.

Results like these have helped EDS become the world leader in helping organizations apply information technology effectively. To find out how we could help you, write Peter V. Abene, EDS, 7171 Forest Lane, M59, Dallas, TX 75230. Or call (214) 490-2000, extension 159.

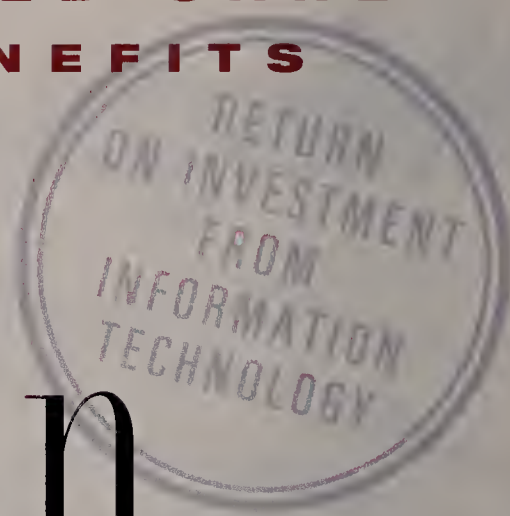
Results and

The EDS logo consists of the letters "EDS" in a white, sans-serif font, centered within a dark blue square.



**TRAVELERS MANAGED CARE
AND EMPLOYEE BENEFITS
OPERATIONS**

Swimming in Black Ink



FORTY MILLION PAGES of benefits booklets annually were swamping one of the country's largest in-house print shops—until a reengineering project shaved months off the publishing cycle and more than 40 percent off the cost per page

BY RICHARD PASTORE



I**NSURANCE COMPANIES** may claim they deal in protection and peace of mind, but by volume their biggest trade is in paper—policy certificates, benefits description booklets and amendments—usually measurable in football fields, Washington Monuments and even trips to the moon. Unfortunately, such colorful metrics don't lend themselves to serious ROIT studies. So when Travelers decided to improve the quality and speed of its benefits booklet production system, it waded into a meticulous cost/benefit analysis that calculated annual paper volumes in eight figures and per-sheet production costs to the sixth decimal place.

Travelers Managed Care and Employee Benefits Operations (MCEBO), a division of The Travelers Companies in Hartford,

Conn., had in 1988 what was reputed to be the second largest in-house print center in the country. The 300-person operation was dedicated to typesetting and printing some 40 million pages of benefits booklets per year. These booklets, technically called contracts, detail health and life insurance benefits for employees of Travelers' corporate customers. But even this mammoth print shop could not keep up with demand. It took an average of four to five months and as many as 28 steps to hammer out a contract's text; shuffle hard copy around to obtain legal, underwriter and client approval; and get the booklets printed and out the door. With backlogs and costs mounting, Travelers decided it had to make a change.

The proposed electronic publishing solution, known as the Interactive Contract Production System (ICPS), would outfit contract writers with a desktop publishing package and link them online to underwriters, the legal department and a host

computer that tracks the documents and drives the Xerox laser printers. Standing alone at the back end of ICPS would be document binding and stapling machinery. The multifunctional system would even take care of printing United Parcel Service labels for shipping the batches of booklets to corporate clients.

The 140 IBM PCs, connectivity components, publishing software and binding equipment were figured to cost nearly \$393,000. Development of tracking pro-

THE BOTTOM LINE

GROSS RETURN

Direct savings

- ▶ Printing and typesetting costs: \$1.6 M annually

Indirect savings

- ▶ Fines avoided: \$40,000 annually
- ▶ Hiring and retraining costs: \$48,000 annually

Total annual ROI: \$1,688,000

COSTS

- ▶ Capital costs (hardware, software and training): \$393,000 one-time cost
- ▶ Development costs: \$388,000 one-time cost
- ▶ Operating and maintenance costs: \$0

First-year total costs: \$781,000

Subsequent total annual costs: \$0

First-year net ROI: \$907,000

Subsequent net annual ROI: \$1,688,000, less an annual 6% growth in support costs

grams and binding-machine software added another \$388,000 to the bottom-line projection.

IS project manager Joseph Cotter, now a second vice president of IS, had primary responsibility for doing the ROIT numbers. Finding out just how much was being spent

JOSEPH COTTER (FROM LEFT), BROOKS JOSLIN AND JOHN STEARNS DETERMINED THE NEW SYSTEM WOULD SURPASS TRAVELERS' REQUIREMENTS.

to produce those 40 million pages was relatively easy because printing costs were already tallied as part of an internal charge-back system. The company was spending \$.0724085, or roughly 7 cents per page—a total of \$2.8 million per year—in typesetting and printing costs. By eliminating \$40,000 in photocopying costs and reducing typesetting and printing labor costs, ICPS would slash that per-page price to 4 cents—a \$1.3 million annual savings. Deduct from that the \$781,000 one-time system capital and development expense, and the project would pay for itself in 1989, its first year of implementation, and earn more than 100 percent ROI in its second year. That

"We demolished the print center and put a parking lot where its building used to be."

—JOSEPH COTTER

more than satisfied Travelers' corporate mandate that systems reap a 15 percent or better ROI and generate positive cash flow within two years.

Travelers also stipulates that ROIT proposals look five years out, factoring in rising labor costs and system amortization. Again, having a chargeback arrangement helped Cotter do the five-year extrapolation. In determining chargeback rates, the IS department annually adds 6 percent to account for staff salary raises. Cotter added that same hike to the annual printing costs from 1989 to 1993.

Even the most meticulous calculations can overlook something. Luckily for Travelers, the unforeseen turned out to be savings rather than expenses. Originally, ICPS sponsors thought the old print center would still handle typesetting for the thickest, most complex benefits booklets. But technical upgrades to the system's stapling and binding component took care of that problem, saving an additional \$310,000 in typesetting costs and rendering the print center moot. "We demolished the center and put a parking lot where its building used to be," Cotter said.

Worker morale also improved as a result, and Travelers even found a way to quantify that. By eliminating redundant, frag-

came from avoided penalties. If Travelers sends out booklets that fail to note current state insurance regulations such as coverage minimums, state review boards can fine the insurer. The old system relied on direct communication between the contract writers and the legal department

The old system required an average of four to five months and as many as 28 steps to hammer out a contract's text, shuffle hard copy around for approvals, and get the booklets printed and out the door. With backlogs and costs mounting, Travelers had to make a change.

to keep abreast of regulations. Miscommunications were responsible for as much as \$40,000 a year in fines. That risk is eliminated by ICPS's online links. Now the legal staff automatically downloads regulation updates to contract writers weekly.

Even if these cost benefits had not been documented, the system might likely have been approved anyway, according to John Stearns, senior vice president of MCEBO. "We had an interest in what the system would cost, but we weren't driven by expense considerations," he said. Improved service was the real driver, and the new system delivered here as well. Since contract drafts can now be zapped electronically back and forth for internal sign-offs, total process steps have dropped from 28 to eight. Average production time has gone from four-to-five months to less than 30 days, eliminating the backlog that brought the ax down on the original system.

Yet the experience in calculating ROIT was not wasted, Cotter noted. In today's economic climate, service improvements alone are not always enough to guarantee the green light for IS projects. More often, cost-savings calculations like Cotter's are required before corporate executives will even consider a proposal. Gone are the days when one Washington Monument and two-and-a-half football fields would win a hearty "Go to it lads" from the corporate board of directors. ☐

TECHNICAL PROFILE

OLD SYSTEM:

Traditional print center

NEW SYSTEM:

Hardware: 140 IBM PCs, Xerox Corp. laser printers, Gunther Standard booklet maker and finishing equipment

Software: Ventura Software Inc. Ventura Publisher Package and Elixir utilities

mented and unfocused steps in the booklet-production process, the system frees contract writers to spend more time using their professional analytical skills, according to Brooks Joslin, president of national customer accounts. The system's online nature also opened the door for telecommuting, an arrangement that helped retain several employees and save an estimated \$48,000 in hiring and training costs.

Another indirect but significant savings



Give your customers what they want... ...even if they ask for the moon.

**DCS/Logistics® software:
the launching pad to a new
world of customer service.**

What are your customers asking for today? More importantly, what will they *expect* tomorrow?

Shelf-ready shipping. Order consolidation. Invoicing options. Instant information. Hundreds of customers may pressure you to do business in hundreds of unique ways. With DCS/Logistics distribution management software you can respond faster—and more profitably—to demanding requests. Anywhere in the world.

Capabilities like EDI, bar code scanning, multi-language and multi-currency, order processing, DRP/replenishment, pricing and promotions, inventory and warehouse management, and shipment planning let you build strong, strategic relationships with your customers.

As an open systems solution with a client server architecture and relational database, DCS/Logistics is technically light-years ahead.

Fully scalable versions are available for IBM® and Digital VAX™ platforms.

When your customers ask for the moon, promise it to them. With confidence. Call Andersen Consulting at (800) 541-7512 or (312) 507-6588.

**ANDERSEN
CONSULTING**
Software Products

Labored Relations

For distributed efforts to succeed, IS professionals must overcome their historic disdain for users and learn to enlist their support

BY LISA M. MOOSE

Whether or not you think end users are the complaining, untrainable burdens of support that IS tradition claims, like it or not, they are becoming responsible for piloting corporations' information machines through the often dire straits of distributed processing. They are driving the data—inputting, uploading and controlling the integrity of the facts that support our critical business decisions.

End users are key players. They are critical links that can make or break IS efforts. It is surprising to what extremes end users will go to support IS efforts when they actually understand the purpose, structure and role of a network. It is also disheartening to see what extensive and irreparable damage they can cause when they can't fathom the objective of such an imposing technical edifice.

One effective method of soliciting end-user support is to clearly and tactfully inform them of changes they can anticipate with a planned net-

work implementation. Before any network card or software is loaded onto the user's PC, it is essential to advertise upcoming events. Such network promotional efforts tell end users what's in it for them. Also, a forum in which end users can voice their concerns and have them addressed—such as a newsletter, bulletin board or suggestion box—helps eradicate rumors that could be counterproductive to IS efforts.

Most end users take pride in their understanding of their PCs (minimal though it may be). The majority listen attentively to instructions, take notes and are proud to display an ability to learn and perform. Positive results almost always occur when someone from IS takes the time to work with end users and address their computer needs.

Unfortunately, such simple, common-courtesy tasks are more often neglected than not. How many IS managers have failed to see the benefits of empowering end users to both enjoy the fruits of their PC successes and bear the responsibility for failures? Empowered end users not only are more likely to buy into and support the systems for the long haul; they also can run the first line of defense for trouble-shooting client PCs in their departments. This effectively relieves IS of many bothersome calls that have simple solutions. (And these types of calls multiply proportionally in a client/server environment.)

Extending a little customer diplomacy to end users goes a long way toward increasing buy-in and improving the IS/end-user relationship. In contrast, a lack of etiquette can spur anarchy. If IS managers allow network implementers to upgrade end users' PCs unannounced, irreparable damage to IS's overall



ILLUSTRATION BY ROBIN JAREAU



**In the latest *Computerworld*
Brand Preference Survey our DPN-100 WAN solutions
mowed down the competition.**



***Computerworld* readers rated Northern Telecom packet switching
number one in Price/Performance, Service/Support, Documentation,
Technology and Most Preferred to Do Business With.**

For more information on Northern Telecom's WAN solutions, call 1-800-NORTHERN and press 1.



Technology the world calls on.

DPN is a trademark of Northern Telecom © 1992 Northern Telecom

reputation as an effective organization can ensue.

At one small business, a high-tech network implementer who lacked interpersonal skills arrived at each end user's PC unannounced to upgrade the hardware and install the network operating system. If the end user was not in his or her office, this technician performed the upgrade without even leaving a note telling the end user what had transpired. You can imagine users' distress and hostility when they tried to use the transfigured PCs, and their confusion on seeing all of the network protocols and drivers being loaded. Yet despite the anger and negative PR that proliferated throughout this small organization, the technician believed he had performed a quality job, since the network equipment was state-of-the-art.

Many end users have no clear image of the network beyond their PC workstations. An end user (with an MBA) at an accounting firm thought that the PCs were simply connected by wires and had no concept of the role of a server. Another, with a college education, at least knew that the wires led to the computer room. However, this person described the network process as follows: "I input it here, it goes to the computer room, and (pause) something happens." (This description is hopefully not representative of the general quality of today's undergraduate computer education.)

A location manager at a small manufacturing firm was totally supportive of a planned LAN. At implementation, this manager was pleased with the new E-mail package that he could now use to communicate with all of his networked subordinates. Yet he continued to share spreadsheet files with his secretary and peers by physically exchanging 3.5-inch diskettes because no one in IS had thought to communicate the purpose or method of sharing files.

If end users seem ignorant, perhaps it's because we in IS have not done our jobs effectively. How ironic to make a career of communications and yet lack the fundamental

*End users must be
seen as assets, strategic
partners, product
champions and
influential customers
rather than unwanted
stepchildren.*

interpersonal skills that make the exchange of basic concepts possible. Having all the high-tech thoughts in the world isn't going to be helpful if we can't relate to our business peers the fundamentals they need to do their jobs.

Here are some suggestions for helping IS assure improved end-user results:

Survey: By thoroughly surveying users on their work processes and current use of technology, IS managers can refresh their understanding of the dynamic needs of the community they are serving.

Study: IS/end-user team studies of the survey results can yield innovative approaches to meeting the organization's needs.

Planning: The survey/study phase should culminate in a clearly documented plan. This, of course, is an integral part of any successful strategy.

Criticism: To maximize long-term achievement, constructive criticism of the plan should be solicited from all appropriate perspectives. Most people dislike being criticized, but the procedure can help IS avoid making ugly and embarrassing mistakes.

Design: If the preceding four steps have been taken, the design phase will not be the nightmare that it so often is.

Approval: The approval process should include more than the top decision-makers. Involving all levels in the process and ensuring that everyone is working toward a common goal is much more effective than force-feeding ideas to subordinates.

Announcement: Announcing an up-

coming implementation prepares people for and gives them a chance to discuss the impending IS event. This type of IS/end-user partnership is priceless when trying to shed the negative image of the old mainframe-oriented IS group that was not responsive to customer needs.

Implementation: Finally, the implementation must proceed as advertised. Missing a target that has been loudly announced is hard to live down.

It is deceptively easy to discount these suggestions as unnecessary. IS managers currently groping for funds and dodging the cuts from downsizing may view them as too costly. However, the problems created by not satisfying end-user needs are significant and will be far more threatening to the success of distributed computing than one might initially imagine. This is true not only in terms of the time required to correct simple mistakes, but also in the negative perception of IS by the organization at large.

With budget cuts looming, the IS manager must aggressively service organizational needs. End users must be seen as assets, strategic partners, product champions and influential customers rather than unwanted stepchildren. This positive perception of end users is especially critical because the success of downsizing, decentralization and distributed technology rests on the shoulders of team players.

The dark ages of sequestered, proprietary systems are ending. The technocratic caste system is evolving toward free enterprise. In this period of transition from antiquated closed to open systems, the intensity and speed of computer tasks cannot be effectively managed without making optimal use of all involved personnel. After all, the integrated end user is none other than the discerning "bio-ware" by which the network interfaces with its purpose at large. ☐

Lisa M. Moose is a programmer II at Hoechst Celanese Corp. in Narrows, Va.



The Bigger You Think, The Smaller It Gets

With BT's Global Network Services, You're Always in Touch.

Going Further. Global operations can bring new challenges—cultural, technical, practical. But BT™ makes it smoother and simpler, because we've been there. We *are* there. Our international presence is

unmatched by any other communications company. That means you can cross continents and cultures and stay in control. No matter what you choose from BT's global portfolio, BT goes further for you.

Staying Closer. At BT, we make it our business to know yours. We tailor our technology to deliver the right solutions for you. Your investment is future-proof, with BT as your partner.

To find out how, call for our *Going Further, Staying Closer* brochure. 1-800-872-7654 in the U.S., or 1-800-874-7654 in Canada.



Going Further Staying Closer™

GLOBAL NETWORK SERVICES™, FRAME RELAY, VIDEOCONFERENCING, EDI, ELECTRONIC TRANSACTION SERVICES, MESSAGING, FINANCIAL TRADING SYSTEMS, AND GLOBAL NETWORK OUTSOURCING FROM **SYNCORDIA™**.

Group Dynamics

CIO affinity groups provide social, educational and cost-saving opportunities

BY MEGAN SANTOSUS

Peer networking might sound like just one more newfangled product of a time when "teamwork" and "collaboration" have taken on buzzword status, yet the concept is practically as old as business itself. Hippocrates wrote about the importance of creating a partnership with a colleague, and European craft guilds played an influential role in shaping medieval society. Today peer networking can be especially helpful for IS executives attempting to cope with the pace and extent of change in information technology.

Fortunately, there are a number of national, regional and local affinity groups where IS managers can gather to discuss a wide range of issues, exchange new ideas or compare vendor horror stories. These groups provide not only social occasions for meeting peers, but also money-saving opportunities where members can arrange to collaborate on research and share training costs.

The Society for Information Management (SIM), headquartered in Chicago, is one of the most venerable CIO affinity groups. Founded in 1968, at a time when information management was still an obscure back-room function, SIM today has 3,000 members (two-thirds are senior IS executives and key IS managers; the rest are consultants, academics and other senior executives) and maintains 30 regional chapters worldwide. Industries represented among SIM's membership include manufacturing,

education, financial services, transportation and public utilities. CIOs can meet their peers at SIM's annual conference or establish more frequent contact by participating on a chapter level.

The dynamics of SIM chapters vary because each is free to determine its own membership criteria, agenda and meeting schedules. Consequently, many members participate only on a local level where meetings can be more topical and convenient.

John Stevenson, vice president of MIS for Dr. Pepper/Seven-Up Co., is active in SIM's Dallas chapter. He finds the time spent networking at the monthly meetings as valuable as time spent listening to guest speakers. "Sometimes it can get lonely at the top dealing with a vendor or a technology," he said. "When we get together over dinner, we can find out who has similar issues, and that kind of contact pays for itself."

The Dallas chapter has stricter membership requirements than the organization as a whole: Nearly all of its 55 members fill one of the top two IS spots in their companies. Industries represented include banking, oil and gas, retail, insurance, health care, and food and beverages.

According to Stevenson, the diverse membership can be both beneficial and detrimental. "It's great to know that we share many of the same issues," he said. "But it's hard to find someone with whom I can compare notes about the beverage industry."

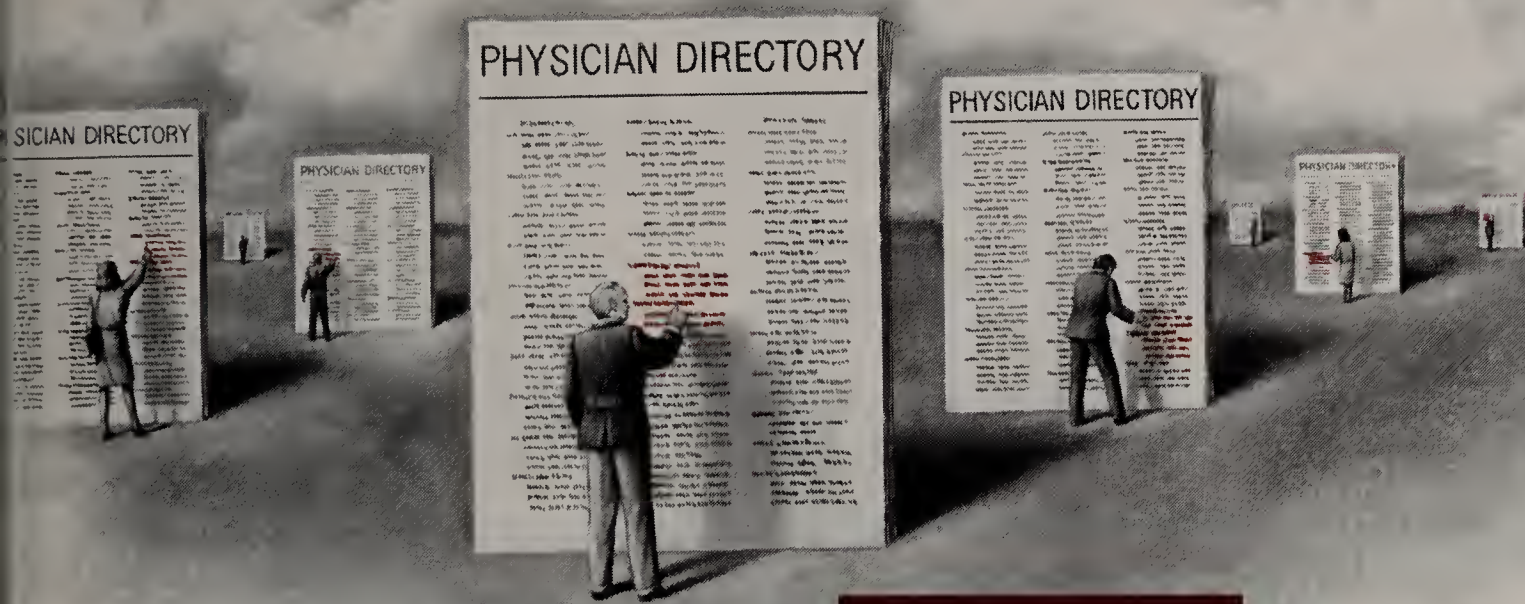
SIM's Working Groups originated in 1990 to expand networking opportunities for members with similar interests and agendas. They differ from other SIM groups in that they focus on "critical" areas of IT management. Organized around the theme of quality, five regional pro-



ILLUSTRATION BY BETHANY GULLY

XEROX

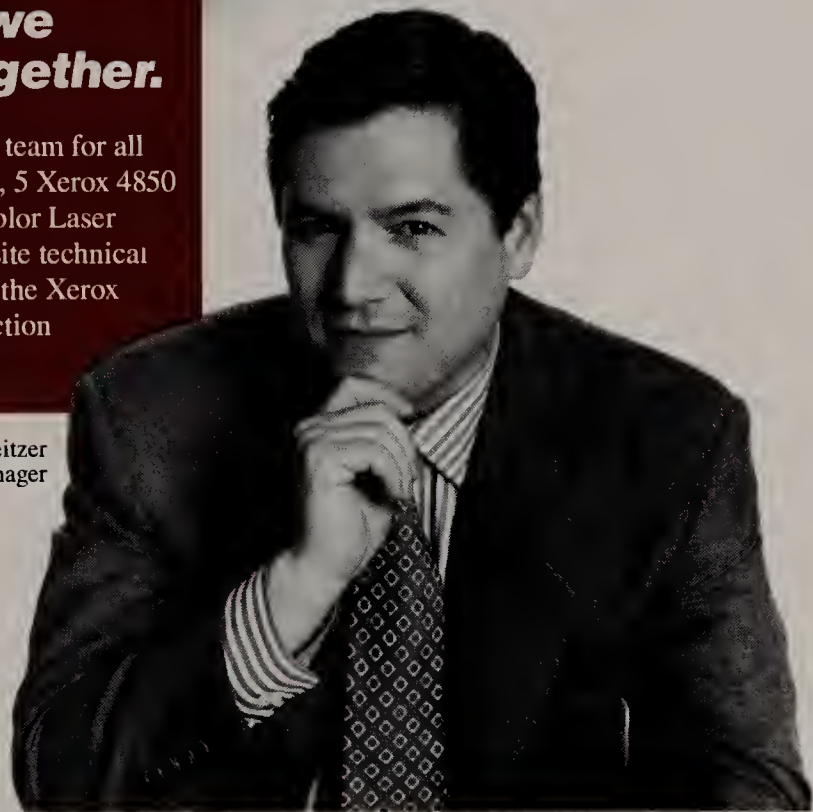
**To add value to their database,
they need to add color
to their data.**



What we put together.

A designated team for all requirements, 5 Xerox 4850 HighLight Color Laser Printers, on-site technical support, and the Xerox Total Satisfaction Guarantee.

Chuck Schweitzer
National Account Manager



This major insurance company needed to ensure its position in an increasingly competitive marketplace. That meant making customer service a priority. And that's a priority Chuck Schweitzer and a team from Xerox could help them achieve—with the Xerox 4850 HighLight Color Laser Printer.

As the first production-class duplex laser printer to offer highlight color, the 4850 lets them create documents that communicate more effectively. For instance, they can highlight variable data in Provider Directories so customers can find information they need quickly and easily.

It's a service their customers especially appreciate. And

the company appreciates how the 4850 is the most cost-effective way to add color to variable data without incurring the prohibitive costs of offset printing. Not to mention the savings they enjoy by eliminating preprinted stock, reducing warehousing costs, and improving turnaround time.

If putting together results like this would stand out in your business, call 1-800-TEAM-XRX, ext. 609B.

Xerox
The Document Company

tototype groups were formed in 1991 so that members with similar interests could get together and share experiences.

Warren Harkness, director of information services for Bose Corp. in Framingham, Mass., is a co-leader of the New England regional Working Group. He finds the interactive nature of the organization complements other SIM offerings where more time is typically devoted to outside speakers. "We have periodic meetings that usually last for a day and a half where we share practical experiences, as opposed to going to conferences and spending 95 percent of our time listening," Harkness said.

The New England Working Group has adopted the Baldrige Award criteria as a framework for discussion and tries to apply its principles to the IS function. Participating companies must be engaged in some phase of a total-quality management program.

The New England group has 11 members from the financial and manufacturing industries, including Corning, Pratt & Whitney, Xerox and General Foods. Each month, co-leaders and steering committee members from all five regional groups hold a teleconference to exchange ideas. Interested IS executives can get a Working Group prospectus from SIM in Chicago, but Harkness warns that membership is only for the dedicated. "These are not social groups," he said. "Members are expected to attend meetings regularly, make presentations and do work on the side. They have to contribute."

Another group that requires member participation is the Health Care Information Systems Executive Association (HISEA). HISEA is limited to 30 health-care information executives from not-for-profit organizations, including the Mayo Clinic, Sloan Kettering and Johns Hopkins. Its goal is for members to share solutions to specific problems.

G. Ward Keever co-founded HISEA

AFFINITY GROUP DIRECTORY

CAM-I

Arlington, Texas
817 860-1654

Chicago Research & Planning Group

Barrington, Ill.
708 381-9128

College of Healthcare Information Management Executives (CHIME)

Ann Arbor, Mich.
313 665-0000

Health Care Information Systems Executive Association (HISEA)

Wilmington, Del.
302 428-6271

National Association of State Information Resource Executives (NASIRE)

Lexington, Ky.
606 231-1905

Omicron

Mountain Lakes, N.J.
201 335-0240

Society for Information Management

Chicago, Ill.
312 644-6610

in 1987, shortly after he became vice president of information services and CIO at The Medical Center of Delaware in Wilmington (see "The Road to Recovery," Page 68). New to health care, he needed to get a grasp on the industry's vendors, technologies and issues. "The most effective way to do this is to network with peers," Keever said.

HISEA requires no fees, but members share the cost of and participate in an annual survey that gathers information about their hospitals' staffing, operating budgets, technologies and other subjects. Members also conduct informal one-page fax surveys among themselves on such topics as disaster recovery, physician office-management systems, imaging and bedside terminals. "We're constantly sending fax-

es seeking information," Keever said. "We've become good friends by frequently staying in touch."

Members also share the costs of HISEA's annual three-day meeting, during which all are obliged to make a 15-minute presentation outlining one idea or solution for strategically applying technology in the delivery of health care. Ideas discussed in the past have included the use of compression software for improving database throughput performance and of intelligent phones for credit collection.

HISEA membership is limited to facilitate close relationships. The application process is informal, but acceptance is selective: Members tend to be from larger organizations with similar budgets and IT infrastructures. Turnover is low because IS executives can remain members for as long as they hold their current jobs, and there is a significant waiting list for membership.

CIOs unable to join HISEA can try the College of Healthcare Information Management Executives (CHIME), an Ann Arbor, Mich.-based group formed to help CIOs advance the strategic application of information management in health care. According to President Richard Correll, CHIME, which was founded last year, has already attracted considerable interest. The organization received nearly 200 applications for membership before its first strategic meeting even took place.

For a \$295 annual fee, members are invited to two annual conferences and receive discounts on intensive management seminars. The most recent course, entitled "The Essential Skills for an Effective Healthcare CIO," was held at the University of Michigan in October. In addition, members receive periodicals, newsletters and a directory profiling all CHIME members, which is designed to be used as a networking tool.

"The opportunity to network ranks extremely high among the members," Correll said. "We've structured the

Quick. Think of a company that's sold \$6 billion more in UNIX systems than IBM.



That's right: Hewlett-Packard. Nobody meets your business UNIX needs better. With the widest range of compatible systems, from desktop to data center. The best price/performance. The best business solutions. The top-rated service and support. Now, with our new line of HP 9000 Series 800 business servers, we're even better. For proof, call 1-800-637-7740, Ext. 7216. Quick.

Think again.



HEWLETT
PACKARD

format of the conferences so they are divided equally between presentations and roundtable discussions."

While members recognize the importance of peer networking within health care, Correll stated that networking with non-industry CIOs is also important. For this reason, CHIME is in the process of developing an affiliation with SIM.

In addition to industry-specific and national peer groups, a few strictly local organizations are dedicated to combating the isolation and confusion of information executives in an IS world rife with choices. One such group is Omicron, located in Mountain Lakes, N.J., which serves New York metropolitan-area IS professionals. (Omicron recently started a group for the Chicago area too.) More than 60 companies participate, including Merck, Pfizer, Citicorp, Avon, Nabisco and AT&T.

James B. Webber, the former COO of Praxis Corp., a company no longer in existence, helped found Omicron in 1981 and now serves as its president. "Back then I felt that large organizations using IT were going at it as best they could, but that it would be great if they could band together to share experiences, insights and ultimately buying power," Webber said. "That's why Omicron came about."

Omicron is geared toward the IS organization and its user partners. An organization's senior IS executive usually makes the decision to join, but programs are aimed at all key managers. Areas covered include application development, telecommunications, data-center operations, human-resource management and end-user computing. According to Webber, any organization can join as long as its participation has an IS impetus. This ensures that Omicron retains a strictly end-user focus and does not become a vendor group. Intensive one-day roundtable workshops (called "interchanges") are usually scheduled on a weekly basis and focus on a specific issue or topic. Participation is limited to 20 to pro-

mote involvement, and all discussion is driven by attendees. The proceedings are completely confidential to encourage candor and disagreement.

"Polarization can be very valuable in a room of 20 high-powered peo-

"These are not social groups. Members are expected to attend meetings regularly, make presentations and do work on the side. They have to contribute."

—Warren Harkness

ple," Webber explained. "Everyone doesn't know everything, and most of our members get more from interacting with their counterparts than they could ever get by listening to a speaker."

Omicron members can also save money by combining their individual buying power. In the area of IS training, for example, if members pool course attendees, Omicron can bring someone in to teach at a rate up to 40 percent lower than if they were each sending one or two employees independently. In addition, four to eight companies participate in working groups to develop solutions and strategies for common problems. "Companies banding together to go after a common set of core deliverables can save enormous amounts of dollars," Webber said.

The Chicago Research and Planning Group (CRPG), in Barrington, Ill., is a not-for-profit organization for CIOs of major industrial companies in the area, such as Sears, the First National Bank of Chicago, the Mercantile Exchange and Stone Con-

tainer. Started about three years ago, CRPG was organized to be different from other networking groups, according to Executive Director Richard Arns. "We don't have the need for maintaining an infrastructure of consultants and academicians, so our dues are minimal," Arns said.

Meetings are held quarterly and feature guest speakers from the high-tech industry. (Recent speakers have included Jack Kuehler of IBM, Randall Tobias of AT&T and Jim Manzi of Lotus.) CRPG also sponsors pilot projects in which 15 to 20 companies collaborate in areas such as education and training, business-process redesign, and quality.

Dave Barany, corporate vice president and CIO of financial holding company Household International and a member of CRPG's board of directors, likes the local aspect of CRPG because it's fairly easy for members to meet regularly outside of scheduled events. He also likes the power-in-numbers aspect of the group. "We have aggregate purchasing power and command a lot of respect from vendors," he said. "We can get high-profile people to take time to talk with us personally, which we couldn't do if we were one-on-one."

There are several other groups across the country where IS executives can indulge their yen for networking, notably CAM-I in Arlington, Texas, for manufacturing information executives and the National Association of State Information Resource Executives in Lexington, Ky. While members are frequently industry competitors, the idea of sharing ideas with a rival rarely hinders participation or productive discussions.

"If there is any competition, it's all in fun," said SIM's Stevenson. "The professionalism among chapter members is high, and we learn helpful things about noncompetitive issues."

Much to his surprise, Barany has had a similar experience at CRPG. As a relative newcomer to financial IS, he finds the friendly atmosphere and lack of egos refreshing. "It's tough being a CIO today," he said, "and I need all the advice I can get." ☐

Only one thing can turn your global network from a burden to an asset.

A Partner.

Outsourcing with Syncordia lets you mind your business better.

A multinational communications network should be an asset that builds your business. Not a burden that bogs you down, distracting you from your core business.

That's why you need a partner.

Outsourcing with Syncordia lets you do what you do best.

Syncordia has a better way to manage your global network. Outsource it with us.

Outsourcing gets you out of the business of building and managing global networks and allows you to redeploy people and assets against the business your company was formed to pursue in the first place.

With us as your partner, managing complex global networks isn't so complex, because that's the business we were formed to pursue.

Most important, to us, partnership means pursuing opportunities, not just solving problems. We'll make it our business to know your business and help you use information technology to get an edge over the competition.

We're part of BT.

Syncordia is the first company built from the ground up to provide global network outsourcing solutions.

We are part of BT, one of the

world's largest and most advanced telecommunications companies. So we have access to the worldwide resources, technical prowess and local market knowledge of our parent company, and retain the entrepreneurial agility to customize solutions for your business.

Not just the first, but the finest.

Syncordia outsourcing solutions range from planning and integration through procurement, installation and maintenance to the operation of your entire network.

In all cases, we guarantee the highest level of customer service through Network Control Centers armed with Concert™ network management software; Customer Support Centers, staffed with multilingual, multicultural managers; and Integrated Single Currency Billing.

The Syncordia Service Level Agreement spells out every detail of what you can expect from our partnership. It defines the shared risks and rewards.

Call us, before your competition does.

Outsourcing your global communications network takes time. And teamwork. All the more reason to begin right away. Because the sooner we become your partner, the sooner your network burden will become a business asset.

For more information on
Syncordia, in the U.S. or Canada,
call 1-800-477-5355.

SYNCORDIA

Let us help you mind your business.

Syncordia is a subsidiary of British Telecommunications plc.



BOOZ · ALLEN

A Balanced Approach



& HAMILTON



With mobiles or information systems, making strategy happen isn't easy. The sculptor—or the systems consultant—must envision the desired results from the outset.

Unfortunately, however, systems projects are too often viewed as linear exercises. Such an outlook ignores the myriad of interconnected, delicately balanced sources and uses of information, leading to systems that don't give executives what they need.

At Booz•Allen & Hamilton, we begin with an understanding of your overall business goals.

Our strategy-driven systemsSM approach enables us to deliver systems that never lose sight of their original business intent... systems at the heart of our clients' business... systems that drive success.

Information Systems Group

212 697 1900

When the mission is critical, you need a PS/2.[®] When data flows fast and furious, you need a PS/2. When success or failure hangs in the balance, you need a PS/2.



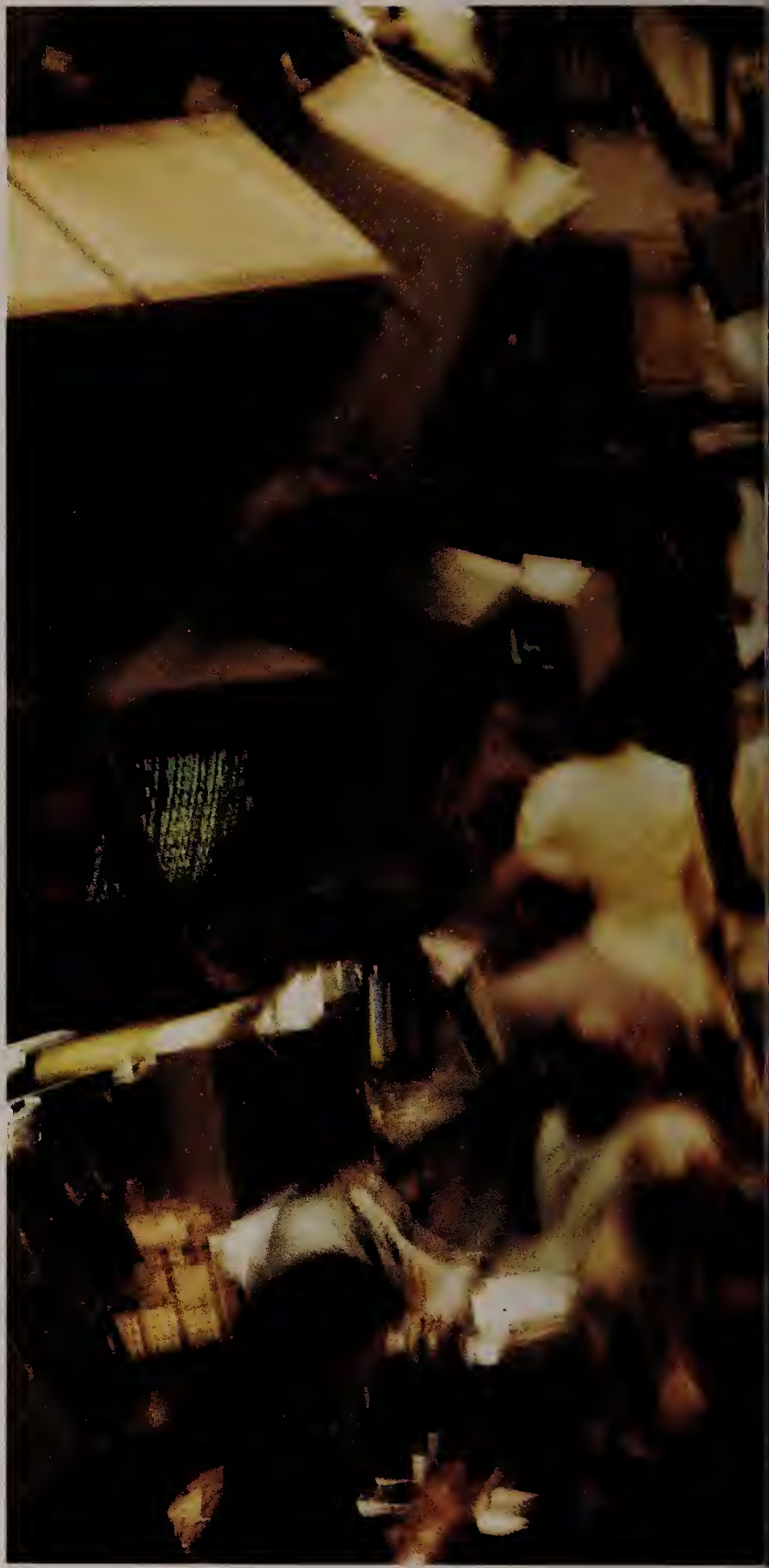
All our new PS/2s were designed to thrive under the most grueling conditions—your typical business day.

PS/2

From standalone muscle machines to LAN servers that can dish out whatever you can serve up, the PS/2 has always been—and always will be—the personal computer you can count on to get the job done. The important jobs. The tough jobs. The jobs you wouldn't trust to some minor league box. That's because every PS/2 is built and tested to withstand your worst nightmare. So when a PS/2 starts working, it stays working. Around the clock. Around the year. Around the world.

And we plan to keep it that way. With powerful, high-end workstations like the new PS/2 Model 77 486 DX2 and Model 57

*Sale or delivery of the IBM PS/2 Server 85 is subject to FCC approval. **The three-year on-site warranty and four-hour average response time apply only to all newly announced IBM PS/2 machine types. Four-hour average response when serviced by IBM or IBM Authorized Personal Systems Servicers. Available Monday–Friday, 8 a.m. to 5 p.m. in your time zone. †In Canada, call 1 800 465-7999. IBM, PS/2 and OS/2 are registered trademarks and HelpWare and HelpCenter are trademarks of International Business Machines Corporation. Windows is a trademark of Microsoft Corporation. © 1992 IBM Corp.



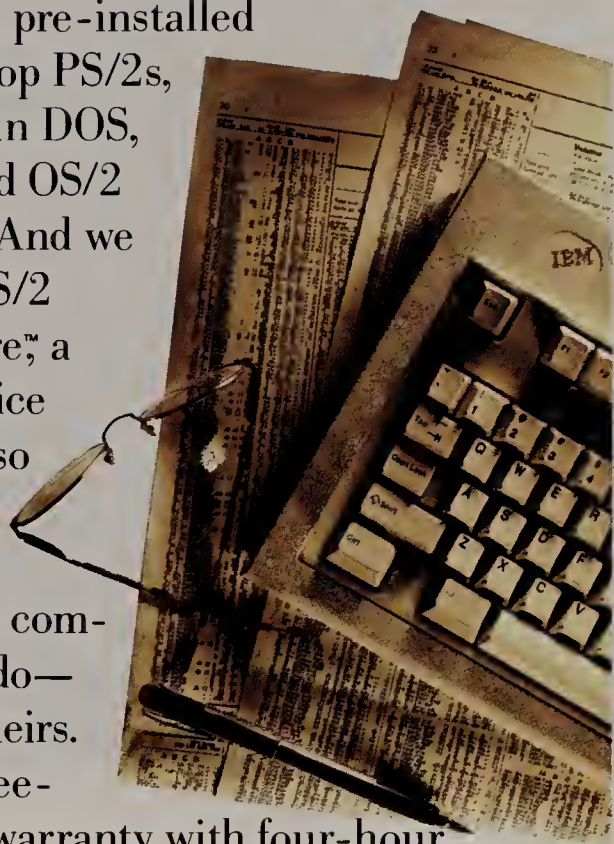
Some jobs are more So are some



486SLC2. With the most diverse line of servers in the industry, from the new PS/2 Server 85 through Server 295.* With the most advanced arsenal of technology available. And with full expandability and maximum flexibility, your IBM PS/2 was built to do more than just run. It was built for the long run.

OS/2® is pre-installed on new desktop PS/2s, so you can run DOS, Windows™ and OS/2 applications. And we back every PS/2 with HelpWare™, a range of service and support so complete, there's only one thing the competition can do—wish it was theirs. You get a three-year on-site warranty with four-hour average response time, 24-hour-a-day/seven-day-a-week assistance and more.**

So, while all kinds of computers make claims about power, a PS/2 offers the most important kind of all. Staying power. For more information or an IBM authorized dealer near you, call our Personal Systems HelpCenter™ at 1 800 772-2227.†



IBM®

serious than others. computers.

How Does One Overnight Delivery Service Guarantee Overnight Success?



Rush. Immediate. On-time. Those are the dictates of the delivery business. Yet Guaranteed Overnight Delivery, Inc. manages to keep up with an extremely demanding schedule

The Answer is ARDIS.

with the help of the ARDIS nationwide wireless communication network.

Before ARDIS, dispatchers tried to reach drivers on beepers and had to wait for them to find a pay phone to call back. Now, drivers carrying handheld computers are in constant contact with fleet headquarters, wherever they are. So dispatchers don't waste valuable time trying to track down drivers, and drivers have more time to make deliveries. In addition, customers can now receive real-time information about the status of their deliveries.

"With ARDIS, our drivers now average 45 minutes of additional time each day, or two-to-three extra stops per truck. And our customers get answers, not excuses."

— Walter Riley,
President,
Guaranteed Overnight Delivery, Inc.

That's just one example of how real-time information solves real-life business problems. For wireless expertise in data communications, network management, application development, systems integration and more, call 1-800-662-5328, ext. 400.

ARDIS

*Real-time information solutions for
real-life business problems.*

ARDIS is a partnership of IBM and Motorola



I N D E X

Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

Company Index

AT&T	72, 90
Aion Development	104
Amdahl Corp.	72
American Express Co.	16
Avon Products Corp.	90
Baxter Healthcare Corp.	68
Bose Corp.	16, 90
Citicorp	90
Coopers & Lybrand	28
Corning Inc.	90
Dr. Pepper/Seven-Up Co.	90
Digital Equipment Corp.	40
Eastman Kodak Co.	16
ENSERCH Corp.	72
Enterprise Systems Inc.	68
First National Bank of Chicago	90
GE Information Services	16
General Automation	40
General Foods Corp.	90
General Motors Corp.	16
Gunther Standard	82
Hasbro Industries Inc.	16
Hewlett-Packard Co.	104
Household International	90
IBM Corp.	16, 40, 62, 68, 72, 82, 90, 100
ITT Corp.	16
Ingres	104
Intel Corp.	16, 100
Lone Star Gas Co.	72
Lotus Development Corp.	90
MCI	40
Maxus Systems International	16
McGraw-Hill Inc.	16
Merck & Co. Inc.	90
Mobile Data	72
Motorola Inc.	72
Nabisco Brands Inc.	90
NeuroDynamX	100
Norand Corp.	40
Northern Telecom	40
Novell Inc.	68
Oracle Corp.	100
PIDEAC	16
Panasonic	68

Parker Brothers	16
Perrier Group of America Inc.	35, 40
Pfizer Inc.	90
Polaroid Corp.	100
Pratt & Whitney	90
Price Waterhouse	16
Printronic	62
PRISM Solutions Inc.	100
SAGA International Holidays	16
Sears Roebuck & Co.	90
Sense8 Corp.	16
Software Maintenance and Development Systems Inc.	100
Stone Container	90
SureFind Classifieds By Telephone	16
Sybase Inc.	100
Tenex Consulting	16
Texas Instruments Inc.	16, 35, 68, 76
Travelers Companies, The	35, 82
Ungermann-Bass	68
United Parcel Service	82
Ventura Software Inc.	82
Wang Laboratories Inc.	62
Westinghouse Electric Corp.	16
Xerox Corp.	82, 90

Advertiser Index

AT&T Technologies	9
Advanced Network Services	C3
Andersen Consulting	21, 85
Answer Computer Inc.	79
Apple Computer Inc.	38
Applied Business Technology	17
ARDIS	99
Ascom Timeplex	23
Bell Atlantic	102
BT North America	89
Booz-Allen & Hamilton	96
Borland International Inc.	71
CIO Publishing Inc.	45
Computer Associates Intl. Inc.	C4, 6, 34
Computron	33
Digital Equipment Corp.	C2
EDS	80
Fujitsu Ltd.	61
Hewlett-Packard Co.	93
Hitachi Data Systems	24
IBM Corp.	13
Information Builders Inc.	27
Informix	75
Integriss	2
New York Telephone	66
Northern Telecom	87
Racal-Datcom Inc.	65
SCO	44
Sybase	43
Syncordia	95
Texas Instruments Inc.	14
Unisys Corp.	4
Wellfleet Communications	19
Xerox Corp.	91

Editorial, Advertising and Business Offices: 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208, (508) 872-8200. **Postal Information:** CIO (ISSN 0894-9301) is published monthly; and semimonthly in April, May, June, September, October and November by CIO Publishing Inc., 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208. Second-class postage paid at Framingham, MA, and at additional mailing offices. **Reprints:** Copyright 1993 by CIO Publishing Inc. All rights reserved. Reproduction of material appearing in CIO is forbidden without written permission. Send all reprint requests to Permissions Editor, CIO, 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208. **Photocopy Rights:** Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus \$.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: †. **Microfilm:** CIO issues and articles can be purchased on 16mm and 35mm microfilm and on 105mm microfiche through University Microfilms International, Serials Acquisitions Department, 300 N. Zeeb Road, Ann Arbor, Michigan 48106. **Subscriptions:** Address inquiries to CIO, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. CIO is free to qualified information executives. To all others the one-year basic rate is \$94 for U.S. and Canada, \$175 to foreign countries (payable in U.S. funds only). The single copy price is \$7. Please allow 4 to 6 weeks for new subscriptions to begin. **Change of Address:** Please fax a copy of current subscription label along with new address to (508) 872-0618. Allow 4 to 6 weeks for change to take effect. **Postmaster:** Send change of address to CIO, P.O. Box 489, Northbrook, Illinois 60065-9816.

CIO Sales Offices

President and Publisher

JOSEPH L. LEVY
508 935-4601

Director of Marketing

CATHY O'LEARY HAYES
508 935-4521

List Services Manager

STEPHANIE LEGELIS
508 935-4433

Sales & Marketing Specialist

BRIDGET CAMMARATA
508 935-4035

CIO Publishing Inc.

492 Old Connecticut Path

PO Box 9208

Framingham, MA 01701-9208

508 872-8200, FAX 508 872-0618

NEW ENGLAND AND CENTRAL

Regional Director/Advertising Sales

LINDA L. BURTON

508 935-4039

CIO Publishing Inc.

492 Old Connecticut Path

PO Box 9208

Framingham, MA 01701-9208

508 872-8200, FAX 508 872-0618

EAST COAST

Regional Director/Advertising Sales

MICHAEL J. MASTERS

Regional Manager/Advertising Sales

FRANK S. GENOVESE

Advertising Sales Assistant

PATRICIA GABELMANN

CIO Publishing Inc.

30 Two Bridges Road, Suite 340

Fairfield, NJ 07004

201 227-1140, FAX 201 227-1565

SOUTH CENTRAL

Regional Manager/Advertising Sales

ROBERT E. SAWDON

CIO Publishing Inc.

5495 Beltline Road, Suite 240

Dallas, TX 75240

214 239-5736, FAX 214 239-5734

WEST COAST

Regional Director/Advertising Sales

GERALD E. PARSONS

Regional Manager/Advertising Sales

RICHARD BASTAS

Advertising Sales Assistant

KERRY S. MALLETT

CIO Publishing Inc.

220 Montgomery Street, Suite 1120

San Francisco, CA 94104

415 398-8200, FAX 415 398-4649

CIO is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 185 computer publications in 60 countries. Thirty million people read one or more International Data Group publications each month. International Data Group's publications include: **ARGENTINA'S** Computerworld Argentina, Infoworld Argentina; **ASIA'S** Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; **AUSTRALIA'S** Computerworld Australia, Australian PC World, Australian Macworld; **AUSTRIA'S** Computerwelt Osterreich, PC Test; **BRAZIL'S** DataNews, Mundo IBM, Mundo Unix, PC World, Publish; **BULGARIA'S** Computerworld Bulgaria, Ediworld, PC World Express; **CANADA'S** Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; **CHILE'S** Computerworld, Informatica; **COLOMBIA'S** Computerworld Colombia; **CZECHOSLOVAKIA'S** Computerworld Czechoslovakia, Elektronika, PC World Czechoslovakia; **DENMARK'S** CAD/CAM WORLD, Communications World, Computerworld Danmark, Computerworld Focus, Computerworld Uddannelse, LAN World, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; **ECUADOR'S** PC World; **EGYPT'S** PC World Middle East; **FINLAND'S** Mikro PC, Tietoviikko, Tietoverkko; **FRANCE'S** Distributique, GOLDEN MAC, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux; **GERMANY'S** Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, edv aspekte, Information Management, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit; **HUNGARY'S** Computerworld SZT, PC World; **INDIA'S** Computers & Communications; **ISRAEL'S** Computerworld Israel, PC World Israel; **ITALY'S** Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia; **JAPAN'S** Computerworld Japan, Macworld Japan, SunWorld Japan; **KENYA'S** East African Computer News; **KOREA'S** Computerworld Korea, Macworld Korea, PC World Korea; **MEXICO'S** Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; **THE NETHERLANDS'** Computer! Totaal, LAN Magazine, Lotus World, MacWorld; **NEW ZEALAND'S** Computerworld New Zealand, New Zealand PC World; **NIGERIA'S** PC World Africa; **NORWAY'S** Computerworld Norge, C/World, Lotusworld Norge, Macworld Norge, Network, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Guiden, Unix World, Windowsworld; **IDG Direct Response**; **PERU'S** PC World; **PEOPLE'S REPUBLIC OF CHINA'S** China Computerworld, PC World China, Electronics International; **IDG HIGH TECH** New Product World, Consumer Electronics New Product World; **PHILIPPINES'** Computerworld, PC World; **POLAND'S** Computerworld Poland, PC World/Komputer; **ROMANIA'S** Infoclub Magazine; **RUSSIA'S** Computerworld-Moscow, Mir-PC, Sety; **SOUTH AFRICA'S** Computing S.A.; **SPAIN'S** Amiga World, Autoedicion, Computerworld Espana, Comunicaciones World, Macworld Espana, Network World, PC World Espana, Publish, Sunworld; **SWEDEN'S** Attack, CAD/CAM World, ComputerSweden, Corporate Computing, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Datalingenjoren, Maxi Data, Windows World; **SWITZERLAND'S** Computerworld Schweiz, Macworld Schweiz, PC & Workstation; **TAIWAN'S** Computerworld Taiwan, Global Computer Express, PC World Taiwan; **THAILAND'S** Thai Computerworld; **TURKEY'S** Computerworld Monitor, Macworld Turkiye, PC World Turkiye; **UNITED KINGDOM'S** Lotus Magazine, Macworld, Sunworld; **UNITED STATES'** AmigaWorld, Cable in the Classroom, CIO, Computerworld, DOS Resource Guide, Electronic News, Federal Computer Week, GamePro, inCider/A+, IDG Books, InfoWorld, Infoworld Direct, Macworld, Multimedia World, Network World, NeXTWORLD, PC Games, PC World, PC Letter, Publish, RUN, SunWorld, SWATPro; **VENEZUELA'S** Computerworld Venezuela, MicroComputerworld Venezuela; **YUGOSLAVIA'S** Moj Mikro



Patrick B. Stewart
Manager-Distributed Processing
Management Information Systems
Weirton Steel Corporation

“Looking for data systems and solutions to hold your business together?”

We're Weirton Steel, the nation's eighth largest integrated steel producer. Three years ago, we set out to change our business fundamentally. Our goal: the highest quality products and the highest customer satisfaction in the industry. From the beginning, we knew our data networking strategy was critical, so we joined forces with the companies of Bell Atlantic.*

We developed our Integrated Manufacturing Information System, which now governs our entire operations environment. Then Bell Atlantic

designed and built a 24-mile high-capacity, high-speed fiber optic network connecting three manufacturing plants to our data processing center. Together, we evaluated the best networking components and found the ones that met our specific needs.

Call me.

The connection is in place, our product is improved, and our

customers are getting better service. Now, we're working with Bell Atlantic to find more ways to improve our operation and improve our business.

So give me a call. I'll tell you more about Bell Atlantic's mettle.

I'll give you the nuts and bolts on Bell Atlantic.”

1-800-723-3467, ext. 1004

©Bell Atlantic
We're More Than Just Talk.®

Callers will hear a recorded message from Mr. Stewart, and will be given the opportunity to leave a message for him or speak with a Bell Atlantic representative. *The Bell Atlantic family of companies includes The Bell Atlantic Systems Group, New Jersey Bell, Bell of Pennsylvania, Diamond State Telephone, the C&P Telephone Companies and other communications and information management companies. © 1992 Bell Atlantic

Merced County's MAGIC Act

A distributed environment and an expert system have helped one human-services agency create some very special effects

California's Merced County Human Services Agency used to have the same problems as many other public-assistance organizations. Its ability to provide services to a growing population in need of help was compromised as case workers strained to keep up with increasing workloads and ever-changing eligibility rules.

In 1985, it became apparent that the organization could not continue operating as it had in the past. "Our client base was growing, and our workers couldn't keep up with the new and complex twists on welfare policy," said Assistant Director Rita Kidd. Faced with a rule change a day and being held personally accountable when benefits were determined incorrectly, experienced employees were leaving in droves. "The training process was a losing battle."

The agency's long-term strategic mission to provide better service to clients at lower cost seemed increasingly elusive. With the mainframe unable to keep up with growing case loads and the cost of upgrades prohibitive, the agency sought an alternative solution to its capacity problems. Consultants were brought in to redesign workflows, and a set of specs for a new architecture emerged. Ander-

sen Consulting was the only vendor to propose a solution that met the agency's requirement for a distributed environment that would enable cases to be extracted from the mainframe in a batch process.

After a protracted approval process and an extended pilot, the multi-tiered client/server architecture (known as MAGIC, for Merced Automated Global Information Control) was completely rolled out by April 1992. Now Aid to Families with Dependent Children, Food Stamps, Medi-Cal, Foster Care and Refugee Cash Assistance are integrated in one system, and the process of determining eligibility and benefits is fully automated, as are tracking, scheduling, monitoring and reporting of case-management information. (For instance, clients' monthly reports are logged into the system. If a report is delinquent, the system automatically generates a notice threatening to cut off benefits.)

Previously, welfare applicants had to fill out 30-page forms and wait up to three weeks just to get an appointment. Today they complete a one-page form and can schedule an appointment at their convenience within 48 hours. A

day after the benefits have been approved, a check is on its way. In an emergency, a check can be cut on the spot.

Kidd cites the improved turnover rates as evidence that MAGIC is a hit with staff members. After 10 minutes of training, employees can say goodbye to the manual method of filing and tracking 750 different forms. Errors are reduced as the expert system prompts clients and caseworkers through the application process. And caseworkers don't have to be aware of each new rule change; rules are entered into the system and applied to cases automatically. "MAGIC has changed the nature of everyone's job," Kidd said.

The average caseworker is also more productive, typically handling 225 cases compared to 175 previously. As a result, MAGIC has enabled the agency to cut its staff by 30 percent even as the number of cases has increased by 40 percent. With 70 percent of the processing now off-loaded from the Hitachi Model 44 mainframe onto the workstations, operating costs have also been reduced.

—Megan Santosus

VITAL STATISTICS

Organization: Merced County Human Services Agency, Merced, Calif.

Application: Client/server architecture supporting an expert system

Sponsor: John B. Cullen, director of the Human Services Agency

Scope: 240 employees including case workers, supervisors, fraud investigators and administrative personnel

Technologies: A Hewlett-Packard Series 9000 minicomputer runs an Ingres RDBMS containing more than 5,500 rules to determine eligibility and benefits for specific programs; an expert system from Aion Development running on HP workstations interprets the rules.

System Integrator: Andersen Consulting

Objective: To provide services more efficiently and at lower cost

Payoff: Productivity increased agencywide by 40 percent with 30 percent fewer employees; improved service to clients; reduced operating costs, turnover rates and training time

Thou shalt not steal thy neighbor's data.



Prevent unauthorized access to your network and protect your data with InterLock_{SM}.

Whether you have a private TCP/IP network or tie your network into the public Internet, you must safeguard your network and your data.

The InterLock_{SM} family of security services from ANS CO+RE Systems, Inc. keeps prying eyes off your confidential material by preventing both trespassing and unauthorized transmission.

InterLock_{SM} provides security between segments of a company's private TCP/IP network and sets up a barrier between the private network and the Internet. The InterLock_{SM} services include security-enhanced versions of TELNET, FTP, SMTP, NNTP and X Window SystemTM protocols, plus end-to-end data encryption.

Using password protection and controlled access to these services,

InterLock_{SM} prevents unauthorized users from accessing your network or removing proprietary information.

Data transmission through InterLock_{SM} applications is completely transparent. And you can choose from a variety of security control features.

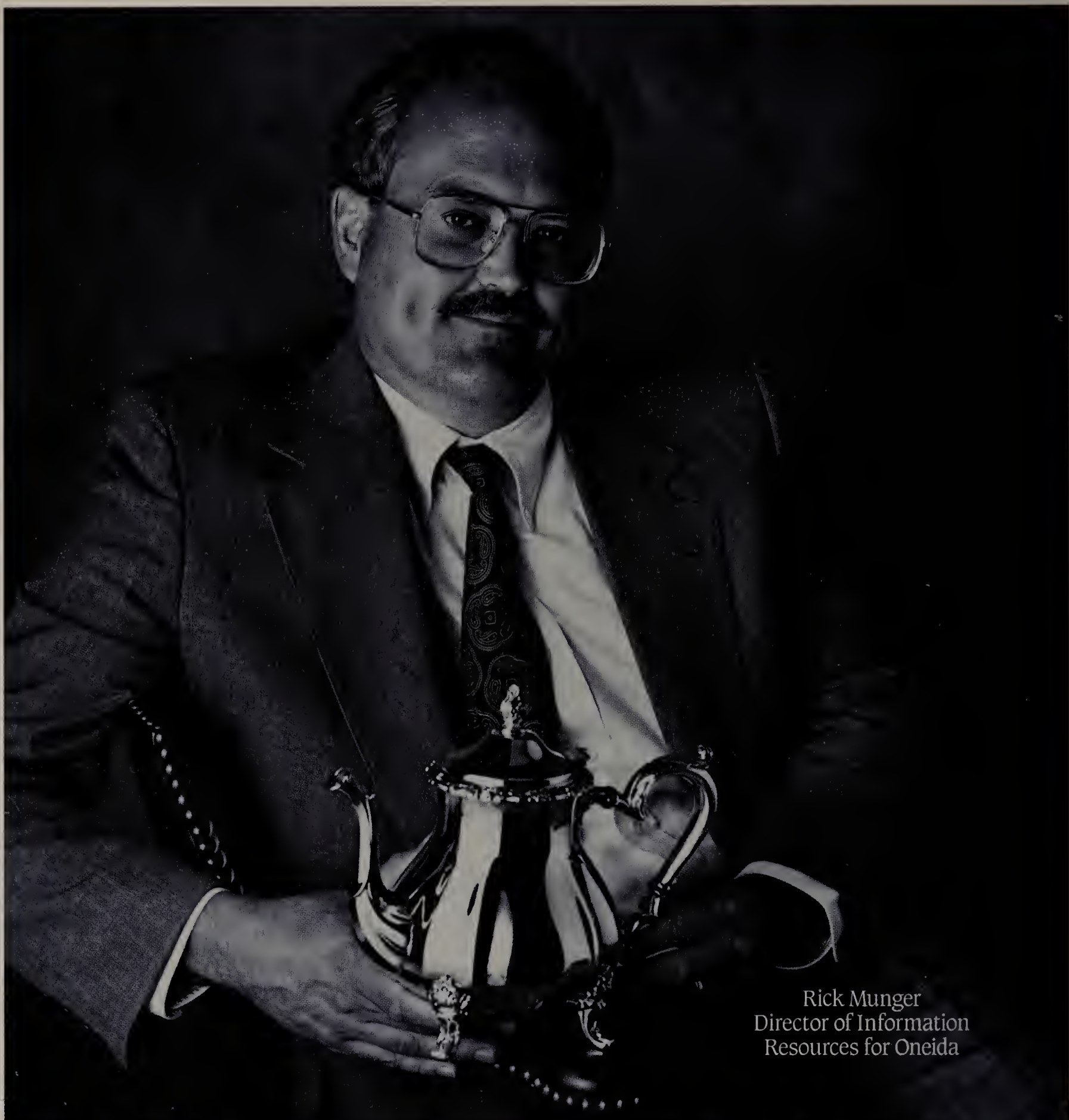
InterLock_{SM} is already protecting the proprietary information of some of the nation's leading companies. What are *you* doing to protect your network and your data?

For more information call 1-800-456-8267.

Or write: ANS CO+RE Systems, Inc.,
100 Clearbrook Road, Elmsford, NY 10523

ans
CO+RE Systems, Inc.

InterLock is a servicemark of ANS CO+RE Systems, Inc., a wholly-owned subsidiary of Advanced Network & Services, Inc. X Window System is a trademark of the Massachusetts Institute of Technology.



Rick Munger
Director of Information
Resources for Oneida

"When we decided to downsize, I was pleasantly surprised to see that CA's a leading AS/400 software vendor. The fact that they offer the leading AS/400 manufacturing and warehouse software made it much easier for us. It's always better to go with somebody you already know and trust."



CA's Computing
Architecture
For The 90s.

We've always gone wherever our clients need us.

AS/400. UNIX. OS/2. Whenever an important new platform emerges, we're always there to support it. You see, unlike most software companies, we're truly independent. We support more hardware platforms and operating systems than any other software company in the world. After all, when it comes to deciding which are best, there's only one real authority.

You.

**COMPUTER
ASSOCIATES**
Software superior by design.